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HANDBOOK

TO THE

FLOWER GARDEN AND GREENHOUSE.



THE HANDBOOK
TO THE
FLOWER GARDEN
AND
GREENHOUSE.

BY
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"THE GARDENER'S EVERY-DAY BOOK," "MANUAL OF PRACTICAL GARDENING,"
"THE CULTURE OF FLOWERS AND PLANTS," "THE CULTURE OF FRUITS AND VEGETABLES,"
"THE HANDY-BOOK ON GARDENING AND GOLDEN RULES FOR GARDENERS,"
"THE PROPERTIES OF FLOWERS AND PLANTS," "GARDENING FOR THE MILLION," ETC

REVISED EDITION.

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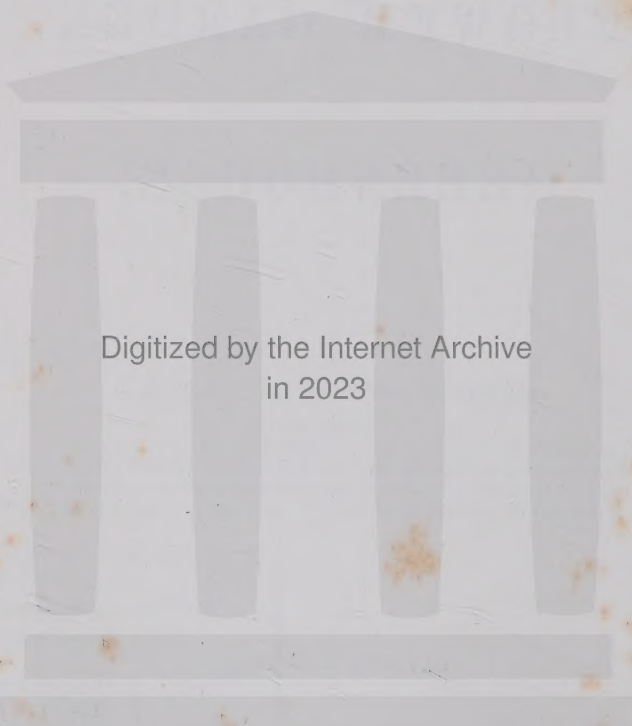
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PREFACE.

THE Handbook to the Flower Garden and Greenhouse was first published in 1851, and several editions were subsequently printed with certain improvements, which added to its value and increased its popularity. It was never intended for a Botanical Dictionary, nor was there any attempt to make it a Catalogue of Plants. The real object was to notice the principal subjects that interest the flower gardener, to give short lessons for their culture, and the work comprised all the popular flowers and plants of the period. But since the publication of the last edition, thousands of novelties from all parts of the world have been introduced. Many of them are worthy of a place in the English garden; others, still more numerous, are not worth the room they would occupy, but are nevertheless talked about, and even mentioned in trade catalogues; some of these are included in the present edition for the purpose of describing their worthlessness. The Supplement, which contains a list of these later introductions, will be found a valuable addition, and will render the work a complete guide to the amateur flower gardener. The ordinary operations in gardening are described at the beginning of the work; where any particular management is required it

is given under the head of the subject to be managed ; and at the end there is a complete Calendar of directions for every month in the year. The present edition is in fact a useful guide to the amateur cultivator, as well as a remembrancer for the professional gardener, who will find it a valuable book of reference, containing a list of all the plants that are worth attention briefly described, with the soil, temperature, and general management required for each fully explained. The volume is, therefore, confidently submitted as one of the most useful and practical works yet published on the subject of Flower Gardening. Such, at least, is the honest opinion of

THE AUTHOR.

INTRODUCTION.

THE following short lessons will be acceptable to those who grow a variety of subjects, and who have general garden establishments. It has always been my aim to avoid mystery—to use the plainest and simplest way of doing everything, from the mixing of the compost to the perfecting of the plant. I differ from most previous writers on the culture of many subjects, for I recommend nothing that is difficult to obtain or offensive in its nature. I have, as far as I could do so, made gardening a pleasure. I do not pretend that the numerous plants and flowers mentioned here are all that could be cultivated ; but I will say they comprise the best, the most popular, and the least troublesome of our floral beauties, and few persons will desire a better collection than may be found among the subjects in the present work.

Some of the ordinary operations in a garden are described at the beginning, that they may not have to be repeated in treating of particular plants. I am thus enabled to say briefly, “Shift this, or prune that, or repot the other,” instead of going over the same ground again when touching upon the numerous plants, which, in fact, require the same treatment. Nevertheless, some of the most popular subjects have tempted me to give particular directions, which are impressed upon the mind of the grower by distinct lessons, simply because I know many are apt to look for the article they require, and expect to find all the necessary information under that one head.

The alphabetical arrangement has been found the most convenient, and I have therefore not made any change in that feature.

GENERAL MANAGEMENT OF A GREENHOUSE.

In winter, greenhouse plants should have an average day temperature of about forty-five degrees, and thirty-six or eight at night. In very cold weather, however, it is better to let the temperature stand at thirty-eight or forty by day than to have recourse to much fire heat. Under the same circumstances it is enough if the night temperature is kept fairly above freezing point. The less fire heat employed the better. If required, the growth of any plants may be pushed on a little in February or March by giving gentle fires in the early part of the day. In all the mild weather of winter admit air freely by opening the sashes, but not so as to cause a draught. In frosty, windy, or foggy weather always avoid opening the greenhouse. As spring advances give more and more air; but when the growth is tender, especially avoid opening to cutting winds; in such cases keep the windward side closed, and open the other as wide as possible. A greenhouse should never be shut up close when the sun is shining, or when the external temperature is as high as forty degrees, nor opened when it is frosty; and, so that this is observed, the time of opening and shutting matters little. It is usual, however, in winter to open as much as may be thought judicious between 10 A.M. and 2 P.M.; and in spring the house is opened about 6, or 8, or 10 A.M., and closed about 4 or 6 P.M., according to the state of the weather.

GENERAL MANAGEMENT OF FRAME PLANTS.

In the case of frame or half-hardy plants, or plants requiring less warmth than a greenhouse affords, the preparation of the frame is a most important matter. The bottom should be firm and impervious to water, so that it may be kept as dry as possible; for which end it should slope in any one direction, so that water spilt in watering the plants may run into a gutter to be carried away outside the frame. The pots should stand upon a trellis a few inches from the floor, and this trellis is best made of narrow slips of wood placed a little space apart. The sashes should be removed from such plants whenever the temperature is as high as thirty-four or five,

except it be raining (in which case they must be kept on to keep the plants dry), or the wind is very keen and nipping. In these cases the sashes should be tilted in such a way as to admit as little of the wet or wind as possible. As the mild spring weather draws on, such plants as these require no protection whatever : at that season they bear our climate.

THE STOVE, FORCING HOUSE, ETC.

The art of forcing is to bring plants out of season ; but as we are treating on flowers, and the system is very easily managed, a hint is enough. Always begin with a low temperature, such as a greenhouse ; and when the growth has fairly begun, increase until you have given them sixty-five degrees with impunity. If Roses were brought from the air, and placed in a temperature of sixty-five degrees, they would be spoilt ; but bring them into forty degrees, and increase five degrees a week, and they will bloom finely. Rhododendrons, Azaleas, and plants of all kinds may be gradually brought to flower early ; and when flowering is done the plants should finish their growth without any check, and then rest in the shade out of doors. Bring them into the house again early : they will force better every year with less heat and greater beauty, but they must be grown as carefully after the bloom is over as they were in forcing, and have plenty of water during the bloom and the subsequent growth.

POTTING

In potting plants always see first to a proper drainage at the bottom. This may be secured by putting broken pots one-fourth of the depth of the pot. In placing the plants in the pots let the roots be free, and spread them round near the surface rather than jam them close together. In shifting plants from one pot to another have plenty of room all round the ball of earth, to insure that the soil that is to be added entirely surrounds the roots. When the space is limited, and the soil cannot go down close and compact, the fibres at the side of the old ball lose their nourishment whenever they are in the hollow. In pressing the soil down be careful not to injure the fibres.

WATERING.

Water no oftener than is necessary, but do it effectually. Never fall into a common error that a plant which requires but little water is to have a small allowance each time. It ought to have as much at each watering as will go through every part of the soil, and no more till it is getting dry. Remember that a plant may be starved for want of water, and yet have twice as much as it requires: a little given every day would not wet half an inch down the pot, and three-fourths of the soil below would be quite dry. Some plants require water once a day, some once a week, some once a month; but whenever they do have it every grain of soil in the pot should be wetted.

STRIKING CUTTINGS.

This is for the sake of propagating plants. Every part of a plant contains the rudiments of every part of a new one, and nature disposes it to perfect itself; that is, to make good whatever may be its deficiencies. Therefore pieces of a plant, the smallest sprigs or cuttings, placed under proper conditions, will make root for themselves and become complete plants. We are not, however, to suppose that the same treatment must be given to all cuttings. The circumstances under which one family of plants would form roots would cause another to die. One great stimulant to the growth of roots is bottom heat; that is to say, the soil should be a little warmer than the atmosphere. Another is the exclusion of air from the leaves. Generally speaking, the wood of one season's growth of all hard-wooded plants, with one joint above the surface and one joint under the surface, placed where there is a bottom heat (that is, in a moderate hotbed, or plunged in tan), covered over with a bell-glass and kept moderately moist, will strike. Many plants, such as Geraniums, Pansies, and other green or succulent subjects, will strike if planted in a common border. But there are so many requisites for the different kinds of plants, that we have gone fully into the operation under some of the principal subjects when describing the treatment of the plants.

LAYERING.

This is performed on many kinds of plants that do not strike root very readily from cuttings. It is performed by bending a shoot or branch down under the surface, and pegging it there to prevent it from springing up again, leaving the end exposed and turned upwards. Some plants will strike root very readily when so pegged under ground, such as Laurels, Hollies, Rhododendrons, Pyruses, Laurestinus, and shrubs in general; but the operation is greatly facilitated by intercepting the flow of sap in any way: for instance, by notching the branch or shoot half-way through, by twisting the shoot, or, if it be of a tough nature, by bending it short, so as to break the texture. It strikes root at that place where the sap is thus intercepted. The branch should not be pegged too deep, as the air is as necessary to it as the moisture, and care must be taken always to keep the ground moist. The most simple way is to cut a slit or notch half through the wood, and to let this notch be just under a joint or leaf.

GRAFTING.

This is the joining a small portion of one kind of plant to the stem of another, which should be a stronger plant of the same family. It is done for the purpose of propagating the more scarce one, or, at least, making one and sacrificing the other; so that in cases where only a small piece of a valuable plant, that does not readily increase by cuttings, is obtainable, the operation becomes an important one. We will suppose it to be a Rose which may be grafted on a brier; or a variegated or scarce Holly on a common green one; or a *Daphne Indica* upon a *Daphne ponticam*, or a Spurge Laurel; or a new variety of any plant upon an old or common one. Cut the two—the graft and stock—so that they fit as close as possible: never mind about the plan of the fit, nor the size you are fitting it in to. The barks of the two plants, that is to say, the edges, must be close, and touch each other on one side at least; and if the piece you put on is only a tenth of the size of the stock you put it to, it will in time grow and cover all the rest. Cut both with a sharp knife, and make them fit close; bind

them carefully and firmly ; then cover with wax or clay to keep the air away until they unite, and the graft begins to grow, when the covering may be taken off, and afterwards the tie may be removed. The time for grafting is when the plant begins its growth for the season.

BUDDING.

This is performed when the leaves of plants have grown to their full size, and the bud is to be seen plump at the base of it. The relative nature of the bud and the stock is the same as in grafting. Make a slit in the bark of the stock, to reach from half an inch to an inch down the stock, according to the size of the plant ; then make another short slit across, that you may easily raise the bark from the wood. Next take a very thin slice of the bark from the tree or plant to be budded, a little below a leaf, and bring the knife out a little above it, so that you remove the leaf and the bud at its base, with the little slice you have taken. You will perhaps have removed a small bit of the wood with the bark, which you must take carefully out with the sharp point of your knife and your thumb ; then tuck the bark and bud under the bark of the stock, which you carefully bind over, letting the bud come at the part where the slits cross each other. No part of the stock should be allowed to grow after it is budded, except a little shoot or so *above* the bud, just to draw the sap past the bud

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TO

THE FLOWER GARDEN.

ABELIA. [Caprifoliaceæ.] A pretty, cool greenhouse and half-hardy deciduous shrub, with long tubular blossoms. Requires a greenhouse. The hardy sorts survive our moderate winters in dry, sheltered situations on rockwork. Soil, sandy loam, mixed with an equal quantity of turfy peat. Propagated by cuttings, planted in sandy soil; the tender ones in a gentle heat, the hardy ones under a hand-glass.

ABIES. **SPRUCE FIR.** [Pinaceæ.] Hardy evergreen or deciduous trees and shrubs, growing in common soil, and increased by seeds and by grafting. A numerous family, but *A. Kämpferi*, *A. Douglasii*, *A. Canadensis*, *A. excelsa* *Clanbrasiliana*, *A. e. pygmæa*, are the best.

ABRONIA. [Nyctagineæ.] Pretty trailing plants, requiring to be protected in a dry frame in winter. The flowers are in heads like those of a Verbena. Soil, sandy peat earth; intermixed with about a third part of decayed vegetable soil. Propagated by cuttings, planted in sandy soil, during the early part of the summer, or by seeds sown in June. *A. pulchella* and *A. umbellata* are generally cultivated.

ABUTILON. [Malvaceæ.] Stove and greenhouse shrubs, with mallow-like flowers, mostly pretty. Soil, rough turfy loam and leaf-mould, made sandy for the young plants. Propagated by seeds, or by cuttings in a mild heat. The species are numerous, and make fine conservatory plants. *A. venosum* entirely supersedes *A. striatum*, the flowers being larger; and *A. pictum grandiflorum* is very much larger than *venosum*.

The flowers of both hang gracefully on long footstalks, are yellow or orange ground, with scarlet veins. They grow better in a stove than a greenhouse all winter; but they may be planted in the open air in June, and make beautiful objects.

ACACIA. [Leguminosæ, § Mimosæ.] Greenhouse ever-green shrubs, nearly all bearing yellow heads of thread-like flowers, some round, some oblong, succeeded by a pea-shaped pod. Soil, half loam and half turfy peat. The best young plants are obtained from seeds sown in June in a frame or greenhouse. Cuttings of the year-old shoots will strike freely. To prepare them, cut the lower end close up to a joint; cut clean off any leaves that are on the lower inch of stem, which may be inserted into the soil, allowing another inch to be above: they may be placed pretty close together, and a glass covered over them. A propagating house or a moderate hot-bed will hasten their striking, but they will strike in a cold frame or in the greenhouse: they must always be shaded from the heat of the sun. When they have struck root pot them into three-inch pots, and as they advance check any shoots that grow too vigorously by pinching off the tops. When these first pots fill with roots, change to a larger size, and continue to change as fast as they fill their present ones. The young seedlings should be treated like the plants raised from cuttings. They are fine conservatory plants. The smaller sorts are manageable in pots; but they require frequent shifting, and then soon get large. The genus is a very extensive one, but the following are among the best:—*A. armata*, *A. dealbata*, *A. Drummondii*, *A. oxycedrus*, *A. platyptera*, and *A. verticillata*. Nearly all the varieties bloom yellow, in spring.

ACACIA (PSEUDO). See **ROBINIA**.

ACANTHOLIMON. PRICKLY THRIFT. [Plumbaginaceæ.] Dwarf hardy perennials, very pretty ornaments for rockwork. Soil, sandy loam and peat. Propagated by cuttings of the half-ripened shoots in a gentle heat. *A. glumaceum*, ever-green; flowers rose colour.

ACANTHUS. BEAR'S BREECH. [Acanthaceæ.] Hardy herbaceous perennials, somewhat coarse, but of stately appearance, the blooms being borne in a tall spike, white, and purplish, protected by spiny bracts. They grow in any kind

of soil, and propagate most readily by division of the root. *A. spinosissimus* has beautifully divided leaves.

ACER. MAPLE. [Aceraceæ.] Hardy trees and shrubs. Common soil. Propagated by seeds and layers. The best are *A. Creticum*, *A. Monspeulanum*, and *A. striatum*.

ACHIMENES. [Gesneraceæ.] Stove tuberous-stemmed herbs, which, if started about March, and grown on in a hot-bed frame, will bloom tolerably well in a warm greenhouse. They are very showy, the flowers having a narrowish tube and a roundish five-lobed face. At the end of the blooming season the flowering stems die down, and nothing is seen but the scaly tubers: these will keep better without moisture, and placed on a dry shelf, but must be left in their pots or pans. When they indicate growth, or at any season when required, the tubers may be started either in the old soil, and potted after they have grown an inch or two, or potted at once, two or three in a pot, in a mixture of leaf-mould and sand in equal parts. As soon as they grow they must be well exposed to the light, otherwise they will become drawn. They cannot be grown too dwarf, and this cannot be attained if they are much shaded, or placed where they have not the full light. The plants may be bloomed in a compost of leaf-mould and turfy loam, equal parts, with sand intermixed. They require perfect drainage, and want only shallow pots. If great increase is required every scale of the tuber will form a plant, if separated and lightly covered with soil, in a brisk heat; but for ordinary purposes the tubers may be planted whole. They strike freely from cuttings in a close frame. Seeds may be sown in the spring, and pricked out as soon as they are large enough, being potted into single ones and changed to larger as they grow. Some persons bloom them with only one shoot from the pot, and this is made to form itself into a bushy plant by stopping it and encouraging lateral shoots. Others put half a dozen tubers in a pot, and this plan produces a complete thicket of branching shoots. The following are distinct:—*A. coccinea*, scarlet; *A. Leipmannii*, rosy lilac; *A. longiflora*, blue; *A. longiflora*, white, with red eye; *A. picta*, scarlet and yellow, the leaves beautifully marbled. There are now numerous beautiful varieties of Achimenes raised from seed.

ACIS. [Amaryllidaceæ.] Hardy bulbs; small, but very pretty. Soil, light sandy loam. Propagated by offsets from the bulbs, which should be carefully separated, and planted where they may not be disturbed.

ACONITUM. MONKSHOOD. [Ranunculaceæ.] Hardy perennials, with showy, curious, hood-shaped flowers. Soil, any common loam. Propagated by parting the roots, which is best done after the bloom declines in the autumn. Divide the root into as many pieces as there are hearts to the plant, with a portion of root to each, and plant them in nursery beds, about a foot apart. The plants, however, need not be parted for several years, for the larger they spread the more showy they are. Once in three or four years is often enough to disturb the plant, and even then, if it be too large, you may cut away some all round to lessen it, without digging the main plant up. *A. autumnale*, flowers deep blue, in autumn. *A. ochroleucum*, flowers yellowish white. *A. variegatum*, flowers blue and white.

ACROCLINIUM. [Compositæ.] A beautiful half-hardy annual. Sandy peat and loam. Seeds. This is one of the most striking of the recently-introduced annuals. The flower is very like that of *Rhodanthe Manglesii*, brighter, perhaps, and more horny. It should be treated like Asters and Stocks for out-of-door growth, and like *Rhodanthe* for pots. When they are two inches high their tops should be pinched off to induce lateral shoots. If sown in the open ground about the middle of April, it grows about nine inches high, and the blooms, which set on the tops of all the shoots, are seen to advantage, whereas *Rhodanthe* hangs its head, and only shows the backs of the flowers.

ACROPHYLLUM. [Cunoniaceæ.] Pretty greenhouse shrubs. Soil, sandy peat, with a fourth part free loam. Propagated by cuttings of the half-ripe shoots. The only one to grow is *A. venosum*, which flowers white, in June.

ADAMIA. [Hydrangeaceæ.] Stove shrubs, related to *Hydrangea*. Soil, a mixture of loam, leaf-mould, and sand. Propagated by cuttings placed in a gentle heat. *A. cyanea*, flowers blue and white, and *A. versicolor*, blue.

ADAM'S NEEDLE. See **YUCCA**.

ADDER'S TONGUE. See **OPHIOGLOSSUM**.

ADENANDRA. [Rutaceæ.] Greenhouse evergreen shrubs, with very handsome flowers, particularly *A. fragrans*, pink, and *A. speciosa*, white and pink. Soil, turfy peat, mixed with sand. Propagated by seeds, or by cuttings of the young tops of the shoots, planted in sand under bell-glasses.

ADENOCARPUS. [Leguminosæ, § Papilionaceæ.] Hardy and greenhouse shrubs, allied to *Cytisus*: all handsome. Soil, turfy loam, lightened by the addition of a third part rotted leaves, and some sand, if the loam is not of open texture. Propagated by cuttings, planted in sandy soil under hand-glasses, or by layers, or by seeds. The best are *A. foliolosus*, greenhouse shrub, flowers yellow; *A. intermedius* and *A. Telonensis*, hardy shrubs, flower yellow.

ADENOPHORA. [Campanulaceæ.] Hardy herbaceous perennials, allied to *Campanula*. Common soil. Propagated readily by division.

ADESMIA. [Leguminosæ, § Papilionaceæ.] Greenhouse shrubs, of somewhat trailing habit. Soil, a mixture of loam and peat. Propagated by cuttings. The best are *A. Loudonia*, *A. microphylla*, and *A. viscosa*, which flower yellow.

ADIANTUM. MAIDENHAIR. [Polypodiaceæ.] Hardy greenhouse or stove ferns, of very beautiful appearance, possessing in their fronds the remarkable property of repelling water. Soil, turfy peat, mixed with silver sand, and containing the proportion of one-half of broken lumps of charcoal and soft freestone or brick, of the size of nuts and walnuts: the pots must be well drained. Propagated by division of the plant, generally with facility. They require a damp, close atmosphere, and therefore, if in an exposed situation, should be kept under a hand-glass even in a greenhouse, the ordinary climate of which is usually by no means damp enough for ferns. The stove species require a house damp and shady, as well as hot. *A. affine*, greenhouse evergreen; *A. capillus Veneris*, half-hardy evergreen; *A. cuneatum*, greenhouse or stove evergreen; *A. formosum*, greenhouse evergreen; *A. hispidulum*, greenhouse evergreen; *A. pedatum*, half-hardy; *A. pubescens*, greenhouse evergreen, are the principal.

ADLUMIA. [Fumariaceæ.] A climbing hardy annual,

bearing white flowers, not very handsome. It grows in common soil, and is increased by seeds sown in the open border about the end of March.

ADONIS. PHEASANT'S EYE. [Ranunculacæ.] Hardy annuals and perennials, with pretty poppy-like blooms. Common garden soil.

ÆCHMEA. [Bromeliacæ.] Stove herbaceous perennials, increased by suckers, which may be planted singly in pots of light, sandy, fibrous soil. They require a moist atmosphere, and should be potted into a rough open compost of fibry loam and peat earth, or leaf-mould not too much decayed. *Æ. discolor*, flowers scarlet and black. *Æ. fulgens*, flowers scarlet and purple.

ÆGOCHLOA. [Polemoniaceæ.] Dwarf hardy annuals, nearly allied to *Gilia*, and requiring the same management.

ÆONIUM. See SEMPERVIVUM.

ÆSCHYNANTHUS. BLUSHWORT. [Gesneracæ § Cyrtandracæ.] Stove trailing sub-shrubby plants, usually epiphytal; all very ornamental, having flowers of a curved tubular form, and richly coloured. They require a damp hot atmosphere, and very light, open, or turfy soil of a peaty nature; and, if grown in pots, they must be thoroughly drained with potsherds. They grow exceedingly well if planted in rustic baskets among turfy peat soil, and suspended from the roof of the hothouse. All the species in their natural state grow on the branches of the trees of tropical forests, and not in the ground. Propagated readily by cuttings. The principal are *Æ. grandiflorus*, orange; *Æ. Lobbianus*, scarlet; *Æ. pulcher*, scarlet; *Æ. ramosissimus*, orange; *Æ. speciosus*, orange.

ÆSCULUS. HORSE CHESTNUT. [Sapindacæ.] Hardy trees, handsome both in flower and leaf. Loamy soil. Propagated by seeds or by layers. *Æ. hippocastanum* and several of its varieties, and *Æ. rubicunda*, are worth a place in large establishments.

ÆTHIONEMA. [Cruciferæ.] Hardy annuals and perennials, adapted for rockwork. Common light soil. Propagated by cuttings planted in summer, or by seed sown in May. *Æ. membranaceum*, hardy perennial; flowers lilac, in June.

AFRICAN MARIGOLD. See TAGETES ERECTA.

AGAPANTHUS. AFRICAN LILY. [Liliacæ.] Greenhouse perennial herbs. These very handsome plants are much neglected, because they happen to be capable of living and flowering with very ill usage. It is propagated by separating the young suckers, that in time would fill the pot and starve the old plant. Hence we see this plant in all places nearly or quite pot-bound, in consequence of which the flowers are small and not brilliant. The suckers should be placed in pots large enough to take all the roots without cramping, in soil composed of loam one-half, decomposed dung one-quarter, and leaf-mould one-quarter, well mixed. Shift into larger pots as often as the roots become numerous, and the instant suckers appear let them be broken off. With this treatment the flower-stem thrown up will be strong, the flowers large; and the plant thus grown forms one of the most noble objects in the garden or conservatory in the month of August. The species merely differ as to their size and the time of flowering; they are all worthy of cultivation. They may be raised from seed by sowing it as soon as it ripens, and starting it in a hotbed; the seedlings, when well up, removed to the warm part of a greenhouse, and when grown enough pricked out into small pots, and treated as young offsets. *A. umbellatus*, flowers blue. The varieties *albidus*, with white flowers, and *variegatus*, with variegated leaves and blue flowers, are distinct and pretty.

AGATHÆA. [Compositæ.] Greenhouse sub-shrubby plants, useful for the summer decoration of the flower garden. Good garden soil, or loam and leaf-mould. Propagated freely by cuttings in August or February, the young plants being kept in a frame or greenhouse, and planted out in May. *A. cælestis*, flowers pale blue, and *A. linifolia*, flowers blue, all summer.

AGATHOSMA. [Rutacæ.] Greenhouse shrubs. Soil, turfy peat mixed with sand. Propagated by cuttings of the tops of the young shoots in sand under bell-glasses. *A. ambigua*, flowers white. *A. imbricata*, flowers pink. *A. villosa*, flowers violet.

AGAVE. [Amaryllidacæ.] Greenhouse succulent perennials, often very large, requiring to be kept dry and from

frost during winter. Soil, half loam, a fourth of rotten dung, and a fourth brick rubbish or broken flower-pots. Propagated by suckers. The American Aloe is an aristocratic-looking plant, often seen in pairs before the villas round the metropolis, and is *said* to bloom once in a hundred years, which is a popular delusion: it, in fact, blooms but once. It is always treated as a greenhouse plant, and nobody cares about its flowering, because that finishes its career. There is hardly a more noble-looking plant; but the flower is more curious than beautiful. The flower-stem grows fifteen or twenty feet high, and throws out horizontal branches, full of yellowish-green flowers, which stand upright. The plants, fully grown in adequate tubs, look truly noble. They should have plenty of room in the greenhouse, and be out on the lawn from May to October. The principal one is *A. Americana* (American Aloe), flowers greenish. The variegated-leaved variety is a distinct and pretty object. There are many other species.

AGERATUM. [Compositæ.] Hardy or half-hardy annuals, of which *A. Mexicanum* or *odoratum* alone is worth growing. Light rich soil. Propagated by seeds, which should be sown in March in a warm frame, and pricked out and hardened for planting out in May. A later bloom may be obtained by sowing in April in the places where they are to bloom, the plants being thinned to give them room after they come up. In beds they should not be less than six inches apart.

AGONOSMA. [Apocynacæ.] Elegant stove climbing shrubs. Soil, sandy loam and peat. Propagated by cuttings in a brisk heat. *A. caryophyllata*, flowers pale yellow. *A. Roxburghii* (Roxburgh's), flowers straw colour.

AGRIMONIA. AGRIMONY. [Rosacæ.] Hardy herbaceous perennials. Common soil. Propagated by division. *A. odorata* and *A. suaveolens*, flower yellow, in July.

AGROSTEMMA. [Caryophyllacæ.] Hardy perennials, with *Lychnis*-like flowers. They should be planted in a prepared rich loamy soil, and are increased by division. The Rose Campion is best treated as a biennial, fresh plants being annually raised about May for the next year's flowering. They grow readily in ordinary garden soil. *A. Bungeana*,

flowers scarlet. *A. coronaria*, flowers rose or white, single, or double. *A. flos Jovis*, flowers red, in July.

AIROPSIS. [Gramineæ.] Hardy annuals or perennials. Light loamy soil. Propagated by seeds. *A. pulchella* is one of the few grasses which may be considered ornamental.

AJUGA. BUGLE. [Labiatae.] Hardy perennials or annuals, the latter of little interest in gardens: some of the former are neat plants for damp rockwork, or for flower-borders in a cool situation. Common damp garden soil. Propagated by division. *A. alpina*, flowers blue, in May. *A. reptans*, flowers blue, in May and June.

AKEBIA. [Lardizabalaceæ.] A slender greenhouse or half-hardy climbing shrub, with elegant foliage. Soil, rough turfy peat and sandy loam. If kept in a pot it must have one of considerable size. Propagated by cuttings planted in sand, and placed under a hand-glass or in a mild hotbed frame. *A. quinata*, flowers pinkish lilac.

ALBUCA. [Liliaceæ.] Greenhouse bulbous plants. Soil, sandy loam and peat. Propagated by offsets or suckers. Most of them may be grown in a sheltered border at the foot of a wall or building.

ALISMA. WATER PLANTAIN. [Alismaceæ.] Hardy water plants. The plants may be planted in the muddy soil of the margins of ponds or lakes, or potted into large pots, and the pots set into water deep enough to cover them. Propagated by seeds or division of the roots. *A. lanceolata*, flowers pinkish white, in July. *A. plantago*, flowers blush, in July. *A. ranunculoides*, flowers purplish, in August. Britain.

ALLAMANDA. [Apocynaceæ.] Beautiful stove climbing shrub, with brilliant yellow flowers, as large as a convolvulus. Soil, two-thirds loam and one-third peat. Cuttings strike well in sandy soil under a bell-glass, with slight bottom heat, and they may be potted off as soon as they are rooted into three-inch pots; and, as these become filled with roots, they may be shifted to others of a larger size. The plant, being inclined to ramble, is best treated as a climber; but it may be treated as a shrub by stopping the ends of the branches while short, and so encouraging lateral shoots. *A. neriifolia* is of a more shrubby habit than the others. *A. cathartica*,

flowers yellow. *A. grandiflora*, flowers clear yellow *A. Schottii*, flowers orange yellow, in July.

ALLIUM. GARLIC. [Liliaceæ.] Hardy bulbs. Good loamy soil. Propagated by offsets.

ALLOSORUS. ROCK BRAKE. [Polypodiaceæ.] A pretty little tufted parsley-like hardy fern, growing naturally on rocks, and therefore well adapted for rockwork, called *A. crispus*.

ALMOND. See AMYGDALUS.

ALOE. [Liliaceæ.] Curious succulent greenhouse plants, many of them handsome; greatly varied in their habit, as well as in the colour of their flowers, which all come in spikes, the blooms being tubular. Some have the leaves variegated, some all over spines, others covered with pearly skins, some rough, others smooth, but all highly interesting. Soil, loam and leaf-mould in equal parts, mixed with sand, or pounded brick, or granulated charcoal, in the proportion of one-sixth. The pots must be one-third filled with crocks for drainage. Propagated by suckers or offshoots, which should be taken off while young, to prevent their weakening the parent, unless, as in the case of the tufted-growing sorts, they are grown to fill a pot. The suckers must be put into small pots, and shifted from time to time. The plants should have very little water in winter. The species are numerous. We select a few of the most distinct. (See also APICRA, HAWORTHIA, and GASTERIA.) *A. acuminata*, flowers orange red, in June. *A. albo-cincta*, flowers orange-coloured, in June. *A. glauca*, flowers red, in June. *A. saponaria*, flowers red, in July. *A. suberecta*, flowers red, in April. *A. variegata*, flowers salmon-coloured, in May.

ALONSOA. [Scrophulariaceæ.] Greenhouse or half-hardy evergreen sub-shrubs, with pretty scarlet flowers. Soil, sandy loam and leaf-mould, equal parts. Propagated by seeds sown in March in a hotbed, the seedlings pricked out when large enough, and by the end of April potted separately into small pots, and then hardened off in cold frames for planting out. Cuttings planted in sandy soil, and put in a hotbed in spring, should be treated in the same way as soon as they are rooted: during summer they will root freely under a hand-glass or a shady border. For pot blooming, strong

young plants should be selected in March, and shifted into larger pots as they grow, the stronger branches being stopped to make the plants bushy: they should be grown in a greenhouse or a well-glazed frame. The plants require plenty of air, and to be kept from frost in winter. *A. acutifolia*, flowers scarlet. *A. incisifolia*, flowers scarlet. *A. linearis*, flowers scarlet. *A. Warczewiczii*, scarlet and yellow.

ALOYSIA. [Verbenacæ.] Half-hardy deciduous shrub, with a beautiful lemon-like fragrance. It is usually kept in pots in the greenhouse, and forced for the sake of sprigs for cutting in spring, as an addition to bouquets. The plant is hardy at the foot of a wall; at least, if the branches are killed down by frost in winter, they are renewed from the root in summer. Soil, rich garden mould, or, for pots, sandy loam and leaf-mould. Propagated freely by cuttings. The only one cultivated is *A. citriodora*.

ALSTRÆMERIA. [Amaryllidacæ.] Half-hardy fleshy-rooted perennial herbs, producing very ornamental flowers. The species and numerous varieties, almost without exception, grow freely on a warm border at the foot of a wall, if the surface is slightly covered in winter, although many of them have been called stove plants. Soil, deep rich loam. The roots should be planted six or eight inches deep, and must be kept moist while growing: they require some kind of support as they push up their stems. Propagated by seeds, which should be sown in pots thinly as soon as ripe, and kept in a frame, the young plants being carefully protected from frost. The second season they may be planted out. They are also increased by separating the bundles of fleshy roots, which are furnished with crowns or growing buds at their upper end. They may be grown in pots, in rich sandy loam, the roots being planted while dormant at once into the blooming pots, which should not be less than a foot in diameter, and should contain several plants. *A. caryophyllæa*, often called *A. ligtu*, is a stove perennial, and is cultivated in the same way, only it requires stove heat. It, as indeed all the kinds, should be dormant, and kept moderately dry in winter. (See also BOMAREA.) The varieties are very numerous.

ALTHÆA. MARSH MALLOW. [Malvaceæ.] Hardy

annuals, biennials, and perennials, but, excepting the Hollyhocks (*A. rosea* and *ficifolia*), of little horticultural importance. Common garden soil. Propagated, the annuals and biennials by seeds, the perennials by division of the root.

Althæa rosea (Hollyhock).—The Hollyhock is a noble flower, and the varieties are becoming so numerous and so much improved that it is an established favourite. It is raised from seed, and multiplied by parting the roots—the former to produce new varieties, the latter to propagate old ones. In autumn the old plants must be dug up and parted, each heart being separated with a portion of root to it. These are to be planted out in a nursery bed one foot apart, or they may be planted at once where they are to bloom. They will stand three years, or even more, if a large plant and a number of spikes of flower be the object. Even in parting them they need not be divided into single hearts, unless increase is desired. Choice varieties may be increased by cuttings of the flowering stems, every leaf, with a portion of the old stem containing a bud, being capable of forming a plant if treated as a cutting. They are best planted at the back of borders, or in the midst of shrubs, the plants being in no way interesting; but the flower-spikes, which are produced at the upper part of the stem, are very noble objects. The variety of colour afforded by this plant is now considerable, and some varieties are very rich and distinct: they bloom from the latter part of July to September. For varieties of Hollyhock consult the newest trade catalogues. For exhibition the plants are grown in an open situation, and are topped at the height they are required. When they are coming into flower they are freely moistened with liquid manure instead of water. The buds are thinned out so that the flowers shall not be too close, and shaded from the extreme heat of the sun. The garden varieties now amount to some hundreds.

ALYSSUM. MADWORT. [Cruciferae.] Dwarf hardy perennials or sub-shrubby plants, with cruciferous flowers. *A. saxatile* is very suitable for rockwork, or the front part of a flower-border, and forms a beautiful spring-blooming bed in the flower garden: it is increased by cuttings. Good garden soil. The herbaceous species are propagated by divi-

sion; the sub-shrubby ones by cuttings. Vigorous two-year-old plants are the best for blooming; the others are unimportant. The plant commonly called Sweet Alyssum is not of this genus; it is the *Koniga maritima*.

AMARANTHUS. AMARANTH. [Amaranthaceæ.] Hardy and half-hardy annuals, sometimes showy from the large masses of rich-coloured flowers, as in *A. caudatus*, in which they droop, and *A. hypochondriacus*, in which they grow erect; sometimes grown for the curiously-coloured foliage, as in *A. tricolor*. Soil for the hardy sorts, rich garden mould: these are propagated by seeds sown in the open borders in April, the young plants thinned out to six inches apart. The tender sorts require a light and highly-manured soil—equal parts light loam, leaf-mould, and decayed manure; and must be sown in a hotbed in March, and nursed on till the end of May, and then planted out in sheltered places, or grown on in pots along with Balsams, Cockscombs, &c. *A. bicolor*, half-hardy annual; foliage red and green. *A. caudatus* (Love-lies-Bleeding), hardy annual; flowers deep crimson. *A. tricolor*, half-hardy annual; foliage green, yellow, and red.

AMARYLLIS. [Amaryllidaceæ.] Half-hardy bulbous plants, producing flowers and leaves at different periods, the flowers very handsome. Soil, rich deep loam. Plant six inches deep in a sheltered and well-drained situation, as at the foot of a south wall. Propagated by seeds, which should be sown thinly in pots, in a frame, as soon as they ripen, and after the second year transplanted. (See also BRUNSVIGIA, HIPPEASTRUM, NERISÆ, VALLOTA.) *A. Banksiana*, greenhouse bulb; flowers pink. *A. belladonna*, half-hardy bulb; flowers rose and white. *A. pallida*, half-hardy bulb; flowers pale blue.

AMBERBOA. [Compositæ.] Hardy annuals. Rich garden soil. Propagated by seeds sown in the open borders in March and April. *A. moschata*, flowers purple lilac. *A. suaveolens*, flowers yellow.

AMELANCHIER. [Rosaceæ.] Small deciduous trees or shrubs. Common garden soil. Propagated by seeds, layers, or by grafting on the hawthorn. *A. botryapium* (Snowy Mespilus), flowers white, in spring.

AMERICAN COWSLIP. See DODECATHEON.

AMETHYSTEA. A pretty hardy annual. The seeds should be sown in light peaty soil, covered slightly, and thinned when they come up. *A. cærulea*, flowers blue.

AMICIA. [Leguminosæ.] A warm greenhouse shrub, with papilionaceous flowers. Soil, sandy loam and peat: plenty of root room. Propagated by cuttings in heat.

AMMOBIUM. [Compositæ.] Half-hardy herbaceous perennials. Soil, common garden mould. Propagated by seeds, which are to be sown in July, the plants preserved in frames during winter, and planted out about April. *A. alatum* and *A. plantagineum*, flower white.

AMMYRSINE. [Ericaceæ.] Pretty dwarf hardy evergreen shrubs, better known under the name of *Ledum*. Soil, peat. They should be planted in a sheltered situation. Propagated by layers. The principal varieties grown are *A. buxifolia* and *A. prostrata*.

AMORPHA. BASTARD INDIGO. [Leguminosæ.] Deciduous shrubs, with papilionaceous flowers, hardy, or nearly so, some of them requiring the protection of a mat-covering in winter. Common garden soil. Propagated by layers. The best are *A. fragrans* and *A. fruticosa*.

AMPELOPSIS. [Vitaceæ.] Hardy deciduous climbing shrubs. The Virginian Creeper (*A. hederacea*) is one of the best of all plants, not evergreen, for covering a large space of bare wall or fence, thriving in the most confined situations: in autumn the leaves assume a rich crimson tint. Common garden soil. Propagated by layers or cuttings. *A. hederacea* (Virginian Creeper), hardy climbing shrub, is the principal one grown.

AMPHICOME. [Bignoniaceæ.] An elegant greenhouse or half-hardy perennial, bearing Pentstemon-like blossoms. Soil, sandy loam and peat. Propagated by cuttings planted in sandy soil, and placed in a mild heat, or by seeds. *A. arguta*, flowers pale rosy lilac.

AMYGDALUS. ALMOND. [Rosaceæ.] Small deciduous shrubs and flowering trees. The double-flowered varieties are particularly beautiful. All grow freely in good, loamy, well-drained garden soil. Propagated by budding on plum stocks, the shrubs by transplanting the suckers, or by

layering. The following are best:—*A. communis*, hardy tree, flowers pink; *A. nana*, hardy shrub, flowers pink; *A. pumila* (double dwarf), hardy shrub, flowers red; and some recently imported from China are beautiful for pot culture.

ANACAMPSEROS. [Portulacææ.] Small succulent greenhouse plants. Soil, sandy loam, with one-third pounded bricks; the pots one-third filled with drainage. Very little water in winter. Propagated by cuttings, kept rather dry until they have rooted. *A. arachnoides*, *A. filamentosa*, *A. lanceolata*, and *A. rotundifolia*, all of which have pink flowers.

ANADENIA. [Proteaceææ.] Neat greenhouse evergreen shrubs, allied to *Grevillea*. Soil, peat and loam. Propagated by cuttings in sand under a bell-glass. *A. Manglesii* and *A. pulchella*, flower yellowish, in May.

ANAGALLIS. PIMPERNEL. [Primulacææ.] Hardy and half-hardy slender annuals and herbaceous perennials, of prostrate habit. The hardy annuals are sown in March or April in the open border, and are propagated by seeds. The half-hardy sorts are increased by cuttings, planted in March in hotbeds, or in July or August under a hand-glass, and, when potted off, should be grown in three parts loam and one part peat, and preserved during winter in a dry frame or greenhouse. They are all well suited for beds and borders in the flower garden. The best are *A. Indica*, hardy annual, blue. *A. Monelli*, half-hardy perennial, blue. Of this there are several distinct varieties.

ANAGYRIS. [Leguminosææ.] Coarse greenhouse shrubs, with papilionaceous flowers. Soil, loam and peat. Propagated by cuttings in sand, under glass.

ANARRHINUM. [Scrophulariaceææ.] Pretty hardy biennials, allied to *Antirrhinum*. Common garden soil. Increased by seeds, which should be sown in July for next year's blooming plants. They may be propagated by cuttings. *A. fruticosum* and *A. pubescens*, flower white, in July.

ANCHUSA. BUGLOSS. [Boraginacææ.] Fine herbaceous plants, mostly perennial; some biennial and annual. The perennial kinds grow freely in common garden soil, and are increased by division. The annual and biennial kinds are

best sown where they are to bloom in the open border, as they do not transplant well. The Cape species should be sown in pots about July, and kept through the winter in a dry frame or greenhouse. The soil for these should be sandy loam. The best are *A. Capensis*, greenhouse biennial, flowers blue. *A. Milleri*, hardy annual; flowers pink. *A. ochroleuca*, flowers pale yellow. *A. paniculata*, hardy perennial; flowers blue. *A. tinctoria* (alkanet), perennial; flowers purple. *A. Italica*, blue.

ANDERSONIA. [Epacridaceæ.] A pretty greenhouse evergreen bush. Soil, sandy peat. Propagated by cuttings of the tips of the young shoots in sand under a bell-glass. *A. sprengelioides*, flowers pink, in May.

ANDROMEDA. [Ericaceæ.] Beautiful evergreen shrubs, principally hardy, but a few requiring a greenhouse or stove: these latter are unimportant. Soil, good rich moist peat, or peat with a third part loam. They are best propagated from layers, put down in September, and taken off the following autumn. The seeds are very small, and require to be sown as soon as ripe, very lightly covered, and set in a cool close frame; but this is too tedious a process except with very rare kinds. Perhaps *A. floribunda* may be set down as one of the most useful of all dwarf shrubs; for, like the Laurestinus, it looks well from the time the bloom-buds first appear till they are dead, and that comprises one-half the entire year. (See also CASSIOPE, ZENOBIA.) *A.* (Leucothoe) *acuminata*, flowers white. *A.* (Leucothoe) *Catesbæi*, flowers white. *A.* (Leucothoe) *floribunda*, flowers white. *A. polifolia*, flowers pink. North America, 1790.

ANDROSACE. [Primulaceæ.] Elegant alpine plants, related to the primroses, the hardiest of them well adapted for sheltered rockwork, and all very interesting, grown in pots. Soil, sandy peat and light turfy loam in about equal proportions. Their greatest risk is from excess of moisture about the crowns or roots; and, from the dampness of our winters, they are much more liable to suffer injury than from the degree of cold. They ought to be kept in small pots, very well drained; and, in the application of water, great care is necessary at all seasons, but especially in winter. In our summers they require a cool situation. The perennial,

biennial land annual species require the same kind of treatment, differing only in the mode of propagation, which in the perennials is by division, and in the others by seeds. *A. carinata*, hardy perennial, flowers yellow. *A. lactea*, hardy perennial, flowers white. *A. lanuginosa*, frame perennial, flowers rosy lilac. *A. maxima*, hardy annual, flowers white. *A. septentrionalis*, hardy annual, flowers white. *A. villosa*, hardy perennial, flowers pink.

ANDROSÆMUM. TUTSAN. [Hypericaceæ.] A woody-stemmed herbaceous perennial, forming a pretty under-growth in shrubberies, and growing readily under trees. Common soil. Increased by dividing the tufts of the roots. *A. officinale*, flowers yellow.

ANEMONE. WINDFLOWER. [Ranunculaceæ.] Showy hardy herbaceous perennials, many having tuberous roots. Soil, light rich loam. Propagated by offsets, or by division of the plants, or by seeds, the latter being sown in July to obtain blooming plants for the next year. *A. Japonica*, a fine autumnal-blooming kind, makes a fine bed, and is propagated by every little fragment of its roots, these being thickly set with little buds or budlets. Some of the smaller-growing spring kinds are very pretty if grown in large patches, or to plant about in shrubberies: these propagate by separating their tubers when in a dormant state.

The florist's Anemone, *A. coronaria*, is imported in large quantities from Holland, grows very dwarf, and comprises many varieties of colour, in which blue, red, purple, white, may be found in all their shades. The tubers should be planted three inches deep, and six inches apart, in good loam from a rich pasture; and, if this be not at hand, let some well-decomposed cowdung be mixed with the common earth of the garden. The single and semi-double ones may be raised with the greatest ease from seed, which, as it forms a sort of cottony head or pod, if not watched as it approaches ripeness, will be blown away. Rub the seeds with a little dry sand, to separate them from each other; sow them thinly on a four-foot bed, neatly dug and levelled; rake them in that they may be well covered, and nothing more need be done till they are large enough to handle; then, wherever they are too thick, thin them, leaving the bed with plants at

three inches apart all over. Plant those you remove at the same distance on another piece. *A. Apennina*, flowers blue, in March. *A. Caroliniana*, flowers white, in May. *A. coronaria*, flowers various, in April. *A. hortensis*, flowers rose, in April. *A. Japonica*, flowers rose, in September. *A. palmata*, flowers yellow, in May. *A. pavonina*, flowers red, in April. *A. Pennsylvanica*, flowers white, in May. *A. pulsatilla*, flowers purple, in April. *A. vernalis*, flowers white, in April. *A. vitifolia*, flowers white, in September. There are many other species, all more or less desirable.

ANGELONIA. [Scrophulariaceæ.] Soft-wooded perennials. Elegant stove plants, bearing their showy flowers in long spikes. The leaves of most of the species have a fragrant musky scent. Soil, peat and light rich loam. They require, when established, plenty of pot room, and a good share of water when growing, but the pots must be well drained. Propagated by cuttings, which root very readily in sandy soil, placed in a close frame, with moderate heat. The young plants should be frequently stopped to induce a bushy habit. *A. angustifolia*, flowers purple, in July. *A. grandiflora*, flowers purple, in July; and there is a pretty scarlet variety.

ANIGOZANTHOS. [Hæmodoraceæ.] Greenhouse perennial herbs, with sword-shaped leaves and tubular flowers, remarkable for their velvety exterior surface. Soil, turfy peat and loam, three parts of the former to one of the latter, intermixed with enough sand to make it porous. In the growing season they must be well watered, but must be rather dry in winter. Propagated by division of the plant. The best are *A. coccinea*, crimson; *A. flavidus*, yellow; *A. Manglesii*, green and red; *A. pulcherrimus*, yellow; *A. rufus*.

ANISANTHUS. [Iridaceæ.] Showy greenhouse bulbs. Soil, deep sandy loam. Propagated by offsets.

ANISEED TREE. See **ILICUM**.

ANECTOCHILUS. [Orchidaceæ.] Stove perennial herbs. This is one of the groups of vegetation in which insignificance, so to speak, in the blossoms is more than compensated by the beauty of the leaves, the surface of which has the appearance of the richest velvet, overcast as it were with a network of brilliant metallic colours. The

flowers are white and inconspicuous. These plants require the hot, moist, shady climate of an orchid house. They should be potted in wide shallow pots, among turfy fragments of peat, sphagnum moss, and potsherds, and grow most vigorously if kept usually covered with a bell-glass, which should, however, be tilted a little every day, to prevent their being destroyed by accumulated damp. Increased by division. *A. setaceus* has leaves of a very dark velvet green, marked with a meshwork of gold-coloured netted veins. *A. Lobbi* has leaves similar to *A. setaceus*, with the addition of a broad stripe of gold colour down the centre, and is, perhaps, the same as sometimes bears the name of *pictus* No. 1. To these may be added *A. argenteus*, *A. Lowi*, *A. striatus*, *A. xanthophyllus*—all grown for the beauty of their foliage.

ANOMATHECA. [Iridaceæ.] Pretty half-hardy bulbous perennials. Soil, light rich loam. Propagated readily by seeds or by offsets. *A. cruenta*, planted out in a bed, makes a pretty show, the bloom lasting till September. The seed should be sown in wide-mouthed pots or seed-pans very thinly, and if they come up too thick they must be thinned. The next season they may be planted four or five in a pot, and the following year they may be bedded out in spring, and the bulbs either taken up in autumn, or protected against frost. The bulbs will live through the winter at the foot of a wall, and spring up early, producing a very pretty effect. *A. cruenta*, flowers scarlet. *A. juncea*, flowers lilac.

ANOPTERUS. [Escalloniaceæ.] A greenhouse evergreen shrub. Soil, sandy loam and peat. Propagated by cuttings under a bell-glass in heat.

ANTENNARIA. [Compositæ.] Small hardy and half hardy herbaceous perennials. The smaller kinds are suitable for pot culture in a collection of alpine. Soil, sandy, loamy. Propagated by division. The best are *A. alpina*, flowers pink; *A. Carpatica*, flowers pink; *A. plantaginea*, flowers white; *A. triplinervis*, flowers white.

ANTHOCERCIS. [Solanaceæ.] Greenhouse evergreen shrubs. Soil, light loam and leaf-mould. Cuttings strike freely in sand under a bell-glass, with a mild bottom heat. After they are struck they should be potted in the smallest-sized pots, and as soon as they begin to grow the tops must

be pinched off to induce lateral shoots. Shift them when the pots get filled with roots; as they grow, continue stopping the most vigorous shoots, both for the sake of keeping the specimen within bounds, and to induce side-shoots, for the blooms come towards the end of all the shoots. The best are *A. albicans*, flowers white; *A. ilicifolia*, flowers yellow, purple, and green.

ANTHOLYZA. [Iridaceæ.] Showy half-hardy bulbs. If planted deep, beyond the influence of ordinary frosts, they will live through the winter in warm, dry, sheltered situations. Soil, deep sandy loam. They require merely to be planted out, and left undisturbed for several years. Increased by offsets. *A. Æthiopica*, greenhouse bulb, flowers scarlet, in May. *A. præalta*, flowers orange, in February.

ANTHYLLIS. KIDNEY VETCH. [Leguminosæ.] Hand-some free-blooming evergreen shrubby plants, perennials and annuals, some few requiring a frame or greenhouse. The hardy species are adapted for rockwork. The herbaceous perennials increase freely by seed or division, and grow readily in light sandy soil. The annuals grow in similar soil, and propagate by seed. The shrubby species should be grown in a mixture of equal parts loam and peat, and are increased by cuttings planted in sandy soil and set into a hot-bed, and very frequently by seed. There are many species and varieties.

ANTIRRHINUM. SNAPDRAGON. [Scrophulariaceæ.] Hardy herbaceous plants, mostly perennials. The common Snapdragon (*A. majus*), with its varieties, is the most important. It grows well in a common border, and seeds freely. These may be sown in July or August in a pan or wide-mouthed pot, to be planted out, when large enough, in a bed four feet wide, the plants six inches apart. In the autumn, when they have become strong, they may be removed where they are to bloom. Striking varieties, such as the double-flowered and the striped-flowered, may be propagated by cuttings of the small unblooming shoots, inserted in sandy soil under a hand-glass. When rooted they may be potted singly, into the pots called sixties, and preserved in frames during winter, ready to plant out in the following April. They bloom very well in six-inch pots. The

annuals may be sown in pots in a frame in March, and planted out in May. The principal varieties are English seedlings.

AOTUS. [Leguminosæ.] Pretty greenhouse evergreen shrubs, with papilionaceous flowers. Soil, turfy, with one-third loam and one-eighth sand. Propagated by cuttings of the young shoots in sand under bell-glasses. *A. gracillima*, orange yellow. *A. incana*, *A. villosa*, and *A. virgata*, all bloom yellow, in May.

APHELEXIS. [Compositæ.] Elegant dwarf greenhouse evergreen shrubs. The leaves, which are small, and somewhat woolly, are close pressed to the stems, which thus appear to be covered with long scales instead of leaves. At the ends of all the most vigorous shoots appear the flowers, which are richly coloured, and of the chaffy texture known as "ever-lasting." Soil, sandy, turfy peat, well drained. The plants should have a day temperature of 60° while growing. Propagated by cuttings of the small half-ripened side-shoots in sand, under a bell-glass. Those most cultivated are *A. fasciculata*, yellowish; a white-flowered variety, *alba*; and a red one, *rubra*; *A. humilis*, rose; *A. purpurea macrantha*; and *A. sesamoides*, pale rose.

APHYLLANTHUS. **LILY PINK.** [Liliacæ.] Half-hardy perennial. Soil, sandy peat. Propagated by division of the plant.

APICRA. [Liliacæ.] Small curious greenhouse succulent herbs. They are increased by planting the lateral shoots as cuttings, in sandy soil very moderately supplied with water until they have rooted. Soil, sandy loam and pounded brick rubbish, the pots being drained to one-third of their depth by broken potsherds. As they grow, the pots may be changed for larger ones; but being only small-growing plants, they never require very large pots, and it is preferable to raise young ones, rather than to keep large masses of the older plants. There are many varieties, but none striking.

APIOS. [Leguminosæ.] A tuberous-rooted hardy climbing perennial. The tubers have been recommended as a substitute for potatoes, but are not likely to supplant them. Rich loamy soil. For flowering, the plants must stand undis-

turbed for years. Propagated by division of the tubers. *A. tuberosa*, flowers pink, in August.

APOCYNUM. DOG'S-BANE. [Apocynaceæ.] Acid hardy herbaceous perennials, of rambling growth, with small cup-shaped flowers, not very showy. Common soil. Increased by division.

APONOGETON. [Fluviales.] Curious and elegant perennial water plants. One or two require a stove temperature, others a greenhouse. *A. distachyon* is found to be hardy if kept during winter in deepish water. The tender kinds in pots set into a tank or tub. Soil, peat and loam. Propagated by seeds, which should be sown in spring in the same kind of soil, and the pots set under water : they also increase by offsets. *A. distachyon*, *A. angustifolium*, and *A. juncifolium*, flower white.

AQUILEGIA. COLUMBINE. [Ranunculaceæ.] Handsome hardy perennials. Common garden soil ; good turfy loam for the choicer sorts. Propagated by seeds or by division. The seed of the common kinds may be sown in beds thinly in May ; the young plants, when strong enough, planted out six inches apart every way. If they are to bloom in beds they should be nine inches apart, and eighteen inches from row to row. When they bloom pull out and destroy all the single and ugly ones, and, if desirable, propagate the better ones. The common Columbine has sported into a variety of colours, and some of its double varieties are very beautiful. *A. glandulosa*, flowers white and blue, in June. *A. macrantha*, flowers cream-coloured, tinged with pink. *A. Sibirica*, flowers blue and white. There are now many garden varieties.

ARABIS. WALL CRESS. [Cruciferæ.] Dwarf evergreen hardy perennials, with cruciferous flowers, particularly adapted for rockwork. Common soil. Propagated by cuttings, planted in a shady border under hand-glasses, any time during summer. The annuals, which are insignificant, are raised from seeds sown in March. *A. albida*, flowers white, in February. *A. cærulea*, flowers pale blue, in June. *A. rosea*, flowers rose, in April. There are pretty variegated kinds of *A. albida*, *præcox*, and *lucida*.

ARALIA. [Araliaceæ.] Hardy deciduous shrubs, and tail-

growing herbaceous perennials. They grow with erect stems, and leaves comparatively large, and very compound, the herbaceous kinds being smaller. All desirable as specimen plants for the lawn or shrubbery. Common soil. Propagated by cuttings of the matured stems, planted in sandy soil under hand-glasses. There are some stove and greenhouse kinds. Soil, loam and peat. Propagated by cuttings. *A. crassifolia*, and *A. edulis* flower green, the young shoots eaten as a vegetable. *A. hispida*, flowers white. *A. Japonica*, flowers green. *A. racemosa*, hardy perennial, flowers white. *A. spinosa*, flowers white, in September. *A. trifoliata*, flowers green.

ARAUCARIA. [Coniferæ.] Noble evergreen trees, highly ornamental in their aspect. *A. imbricata*, the Chili Pine, is quite hardy, and a valuable addition to ornamental plantations. A more beautiful kind, *A. excelsa*, the Norfolk Island Pine, is tender, requiring protection. They grow to a large size eventually. Good loamy soil. They may be propagated by cuttings, but seedlings only make handsome vigorous plants. *Cookii*, *Bidwillii*, *Brasiliana*, and *glauca*, are half hardy.

ARBOR-VITÆ. See THUJA.

ARBUTUS. STRAWBERRY TREE. [Ericaceæ.] Beautiful evergreen shrubs, with bell-shaped flowers, for the most part hardy, but some requiring protection. The common species thrive in loamy garden soil; the greenhouse kinds should have equal parts rich loam and peat. They are increased by layering, and may be raised from seeds; the latter plan is mostly adopted, as yielding the best plants. They thrive amazingly in the soil prepared for American plants; but they will succeed in shrubberies in general, where the loam is at all light and sandy. The rarer sorts may be budded, grafted, or inarched on *A. unedo*. The fruit is strawberry-like and very ornamental. *A. andrachne* and *A. procera* are hardy. *A. tomentosa*, a greenhouse evergreen. *A. unedo*, hardy evergreen shrub. These are all pretty, and the flowers are bunches of pale hollow bells.

ARCTOSTAPHYLOS. [Ericaceæ.] Dwarf shrubs, mostly evergreens. Increased by layering. Soil, peat earth. *A. pungens*, half-hardy shrub, flowers white. *A. uva-ursi*, flowers flesh colour.

ARCTOTIS. BEAR'S EAR. [Compositæ.] Greenhouse peren-

nial herbs, with showy composite flowers. Soil, sandy loam and leaf-mould. Propagated by division. Many of the species are remarkable for having the under surface of their leaves covered with a close white wool; and this, together with the form of the leaves, gives them a distinct appearance among other plants. There are many varieties.

ARDISIA. [Myrsinaceæ.] Stove and greenhouse evergreen shrubs. *A. crenulata* is the most generally grown, on account of its bright and coral-like berries, which hang round the stems so as to set the plant off to great advantage. Blooms and bears fruit while small, and may be grown in a warm, close greenhouse, though properly a stove plant. Soil, loam, dung, and turfy peat in equal quantities. Cuttings root well with bottom heat in silver sand, covered with a bell-glass. When rooted pot them separately in three-inch pots, and shift to larger pots as they require it. *A. crenulata* is the best. There is also a white one, *A. c. alba*.

ARDUINA. [Apocynaceæ.] A greenhouse evergreen shrub, the branches furnished with curious forked spines. Soil, peat and loam in equal proportions, carefully drained. Propagated by cuttings in sand under a bell-glass. *A. bispinosa*, flowers white, in July.

ARENARIA. SANDWORT. [Caryophyllaceæ.] Diminutive herbaceous perennials and annuals. Some of the best of them interesting for rockwork. Common soil. The perennials increase by division, the annuals by seeds.

ARETIA. [Primulaceæ.] Pretty little hardy perennials, well adapted for rockwork or for pot culture. Soil, sandy loam and peat. Propagated by division.

ARGEMONE. PRICKLY POPPY. [Papaveraceæ.] Annuals and herbaceous perennials, with poppy-like flowers. Common garden soil. The annuals should be sown where they are to bloom; the perennials are increased from suckers. *A. grandiflora*, hardy perennial, flowers white, in July. *A. Mexicana*, hardy annual, flowers yellow, in July.

ARISÆMA. [Araceæ.] Hardy and half-hardy tuberous-rooted perennials, with a curious and spathaceous inflorescence. Soil, peat and loam. Propagated by division.

ARISTEA. [Iridaceæ.] Greenhouse perennials, with word-shaped leaves. Soil, turfy peat and loam, three parts

of the former to one of the latter. Propagated by division of the plants or by seeds. *A. cyanea* and *A. pusilla*, flower blue.

ARISTOLOCHIA. BIRTHWORT. [Aristolochiaceæ.] Hardy greenhouse or stove herbs or shrubs, often with twining stems. Soil for the tender sorts, rich loam and peat in equal parts; plenty of root room. Propagated by cuttings in sand, with bottom heat. The stronger growers seldom bloom well unless planted out, and their branches trained near the glass. The smaller kinds should have trellises put to the pots when they are finally shifted. The best form is round and round a pillar, formed of four or five stalks. Of all the forms for supporting climbing plants the pyramid is the worst; for as the branches increase in number as the specimen advances, and in no possible case are lessened, there is the more surface required the higher it goes; so that lessening it is a positive evil, and leads to the ends of the shoots all coming together in confusion. For the hardy sorts, common garden soil; the shrubby sorts being increased by layers, and the herbaceous sorts by division. *A. caudata*, deciduous twining stove shrub, flowers livid purple. *A. cymbifera*, stove climbing shrub, flowers yellow and purple. *A. siphon*, yellow and brown, and *A. tomentosa*, purple, are hardy.

ARISTOTELIA. [Tiliaceæ.] Hardy evergreen shrub. Common soil. Propagated by layers. The only ones grown are *A. Macquii*, flowers green, in May, and *A. variegata*.

ARMERIA. THRIFT. [Plumbaginaceæ.] Dwarf herbaceous plants, nearly all hardy. Soil, sandy loam. Increased by dividing the crown, and planting the separate pieces as cuttings under hand-glasses. They are fine rock plants, and also do well in pots; and some varieties of the common Thrift, especially a deep rose and a white one, make a pretty edging to flower-beds.

ARTANEMA. [Scrophulariaceæ.] Greenhouse perennial. Soil, sandy loam and peat. Propagated by seeds, and sown in March, or by cuttings of half-ripened shoots. *A. fimbriatum*, flowers pale blue, in August.

ARTEMISIA. [Compositæ.] Hardy and greenhouse herbs and shrubs, with a few annuals, remarkable in many cases for a strong heavy odour. *A. abrotanum*, the Southern-

wood, is a favourite in cottage gardens ; the rest are unimportant. Common soil. Propagated by cuttings.

ARTHROPODIUM. [Liliaceæ.] Greenhouse perennials. Soil, sandy loam and peat. Propagated by offsets, suckers, or by seeds. *A. cirratum*, *A. fimbriatum*, and *A. paniculatum*, flower white.

ARUM. [Araceæ.] Curious perennials. The majority hardy, but some requiring a greenhouse, others a stove. It is the floral sheath or spathe of these plants that forms the conspicuous part of the inflorescence. The tender kinds should have rich loam, and plenty of water while growing. For the hardy sorts, any common soil that is deep. Propagated by suckers. The sorts are *A. arisarum*, yellowish, *A. crinitum*, greenhouse perennial, brown ; *A. dracunculus*, hardy, brown ; *A. Italicum*, hardy, flowers yellowish.

ARUNDO. WATER REED. [Gramineæ.] Noble hardy reedy perennials. Damp common soil. Propagated by division.

ASCLEPIAS. SWALLOW-WORT. [Asclepiadaceæ.] Herbaceous perennials, including stove, greenhouse, and hardy kinds. For the tender kinds, rich loam and leaf-mould in equal parts. They are best raised from seeds, which are generally produced freely, and the plants should be often renewed : they may also be raised by cuttings in sand in a hotbed. The seed should be sown in pots in the spring, and the plants pricked out as soon as large enough, afterwards potted singly, and shifted into larger pots as they grow. Most of the hardy sorts grow in good deep garden soil, but *A. tuberosa* should have three parts peat to one of good loam. These are increased by division. *A. Curassavica*, stove perennial, flowers orange and scarlet. A white variety is called *alba* ; a long-leaved deep red variety is called *rubra* : these are very desirable stove plants. *A. tuberosa*, hardy tuberous perennial, flowers orange scarlet.

ASH. See FRAXINUS.

ASPALATHUS. [Leguminosæ.] Very pretty evergreen greenhouse shrubs, with yellow papilionaceous flowers. Natives of the Cape of Good Hope, but probably not now in cultivation. A neglected genus. Soil, sandy loam and peat in equal parts. Propagated by cuttings in sand under bell-

glasses, and well drained. There are about thirty species, all ornamental in the wild state.

ASPERULA. WOODROOF. [Rubiaceæ.] Hardy perennials, very pretty for mixed borders. *A. odorata* has the fragrance of newly-mown grass. Cool moist soil. Increased by division.

ASPHODELUS. ASPHODEL. [Liliaceæ.] Ornamental hardy perennials. Common soil. Increased by division. *A. albus*, white. *A. luteus*, yellow. *A. ramosus*, white.

ASPIDIUM. SHIELD FERN. [Polypodiaceæ.] Elegant ferns. Turfy peat soil. Propagated by division. (See also **LASTREA**, **CYSTOPTERIS**, and **POLYSTICHUM**.) They require, like most exotic ferns, a very damp, close atmosphere. *A. heracleifolium*, stove fern, is generally grown.

ASPLENIUM. SPLEENWORT. [Polypodiaceæ.] Elegant evergreen ferns. Soil, turfy peat. Propagated most readily by division. There are many tropical kinds in cultivation. (See also **ATHYRIUM**.) The favourites are *A. adiantum nigrum*, hardy; *A. bulbiferum*, greenhouse; *A. diversifolium*, greenhouse; *A. ebeneum*, hardy; *A. fontanum*, hardy; *A. lanceolatum*, half hardy; *A. marinum*, half hardy; *A. trichomanes*, hardy.

ASTELMA. [Compositæ.] Greenhouse shrubs, with "everlasting" flowers. They require sandy peat soil, smallish pots, a dryish atmosphere, and very careful watering. Increased by seeds, sown as soon as ripe in sandy peat, the young plants pricked out when large enough, and very carefully watered. *A. eximium*, crimson; *A. fragrans*, pink; *A. imbricatum*, white; and *A. speciosissimum*, white. All pretty.

ASTER. STARWORT. [Compositæ.] Hardy perennials, with composite flowers. Common garden soil. Propagated by division. A very large family, of which we enumerate a very small selection. (See also **CALLISTEPHUS** and **FELICIA**.) *A. alpinus*, *A. amellus*, *A. Bessarabicus*, *A. Cabulicus*, blue. *A. Novæ-Angliæ* and *A. pulcherrimus*, purple.

ASTEROCEPHALUS. [Dipsacæ.] Hardy annuals and perennials, including the well-known Sweet Scabious, or Blackamoor's Beauty. The seeds of this are sown in the flower-borders in March, and merely thinned out when the plants come up. The perennial species are of easy culture

in common garden soil, and increase by division. There are many species.

ASTRAGALUS. [Leguminosæ.] Perennials and annuals, mostly hardy, bearing papilionaceous flowers: the large species are suitable for the common borders, and the smaller ones for rockwork. They are increased by seeds, by division, or by cuttings, according to their habit. It is a very numerous family, containing many species of merely botanical interest.

ASTRANTIA. [Umbelliferæ.] Elegant herbaceous plants, quite hardy. Common garden soil. Increased by division. Many varieties pretty, but none particularly striking.

ATHYRIUM. [Polypodiaceæ.] Elegant hardy ferns, including the Lady Fern, *A. filix-fœmina*, one of the most beautiful of the larger growing of our indigenous species. It is an admirable kind for planting on shady rockwork, or on the shady margin of shrubberies, growing most vigorously where the situation is damp as well as shady. The fronds are annual, that is, they grow up in spring and perish in the autumn, new ones being produced from the root in the succeeding spring. It grows in any light common soil. Grown under shelter in a pot, and also, if placed in heat, it is remarkably elegant.

ATRAGENE. [Ranunculaceæ.] Hardy deciduous climbing shrubs. Soil, light loamy garden mould. Propagated by cuttings in common sandy soil, covered with a hand-glass, or by layers made in the autumn, which by the next autumn will be ready to take off as strong plants. *A. Americana*, purple; *A. Austriaca*, blue; and *A. Sibirica*, white, are best.

AUBRIETIA. [Cruciferae.] Pretty dwarf evergreen herbaceous perennials, suited for rockwork, or for the flower-borders, or for pots. If planted in the mixed flower-border they should have two or three stones placed about them, over which their branches will spread. Common garden soil. Increased by dividing the plants.

AUCUBA. [Cornaceæ.] *A. Japonica* is the most useful of all evergreen shrubs, as it will grow almost anywhere, and even thrives in the smoky atmosphere of dense cities: its ample foliage, chequered with white blotches, renders it at all

times conspicuous. No plant is better adapted than this for remedying that bare, dismal aspect which is usually borne by shrubberies in the winter season, owing to the predominance of deciduous plants. Common garden soil. Propagated by cuttings or by layers.

AURICULA. See PRIMULA.

AVENS. See GEUM.

AZALEA. [Ericaceæ.] Handsome, low, hardy and greenhouse shrubs.

The American or hardy Azaleas (*A. Pontica*, *calendulacea*, *nudiflora*, and *viscosa*, with hosts of garden varieties bred from them) are inhabitants of all our best shrubberies, and have been so wonderfully improved by seedling culture as to throw into the shade the original species. There are now to be selected twenty or thirty varieties better than the very best of the original American species. Every year, too, adds to the diversity of sorts, and to the size of the flowers, which is one of the characteristics of the improved kinds. In many places they thrive in the common soil of the garden, but in general they require peat earth to be dug in with the natural soil; and where there is to be any quantity grown, or a nursery of them made, beds of peat earth, or compounds of the greatest part of turfy peat earth, must be made up. They are raised from seed sown in beds in the open air; but, from its extreme diminutiveness, many prefer sowing in pans and wide-mouthed pots. When they are large enough they should be planted out in peat beds, six inches apart; the second year every alternate plant may be taken out and planted elsewhere to make room; and as they increase in size they should have more room. They are propagated chiefly by layers, but cuttings of the last year's wood will root readily in sand.

The Indian Azaleas (*A. Indica*) are evergreen greenhouse shrubs of great beauty, raised by cuttings in sand under a bell-glass, and with moderate bottom heat. In preparing these cuttings, let them be cut up to a joint—the base of a leaf—the lower leaves for an inch stripped off, and the stem fixed an inch into clean silver sand, which should lie on the top of some sandy peat soil, with which, after the drainage, the pot should be filled to within that inch; the bottom of the

cutting, therefore, will reach, but not go into the soil: cover with a bell-glass, to be wiped dry inside every morning. When they are struck they must be potted off into small pots, and changed from time to time as they fill. They may be kept in pits in the summer months, but the greenhouse is the place to bloom them in perfection. Seed may be sown in wide-mouthed pots, and kept in the greenhouse. When well up they may be pricked out into pots, the plants not being less than an inch apart; and when large enough each plant may have a pot to itself. They cannot have too much light and air. When well grown they are a complete mass of bloom in May. They may be grown to almost any size by shifting from one pot to another, and no plants are so gaudy and rich as they are when they are in perfection. Soil, strong rich loam, peat, and dung, made rather sandy for the younger plants.

AZARA. [Flacourtiaceæ.] Greenhouse evergreen shrubs. Soil, sandy loam. Propagated by cuttings in sand in a moderate heat. The two mostly grown are *A. dentata* and *A. integrifolia*, yellowish.

BABIANA. [Iridaceæ.] Greenhouse bulbs. Soil, sandy loam and peat, equal parts. Propagated by offsets. The treatment is to keep the bulbs quite dry when they are ripened off after growing; to re-apply moisture when they indicate a disposition to renew their growth; to supply them liberally with water while growing.

BABINGTONIA. [Myrtaceæ.] A pretty greenhouse evergreen shrub, with a heath-like habit. Propagated by cuttings of the young unflowering shoots, put into sand under bell-glasses, and kept in a moderate heat until they have taken root, when they are to be potted singly into small pots, using a compost of equal parts loam and peat, made sandy for them during these earlier stages of their progress. As the small pots fill they must be shifted into larger ones, using less sand in the compost; but this shifting must not be done after August until February. The established plants should have a good shift about March or April, and should be kept in a light airy greenhouse. The first strong shoots may be topped to moderate their vigour, and to produce a greater profusion of less luxuriant ones, which have a better effect when in bloom.

In May, when greenhouse plants are removed from the greenhouse, these should be set to grow under a frame, to shield them from heavy rains, and support some slight shading in the hottest parts of sunny days, but not preventing the constant circulation of air about them. The lights should be off at night in all fine mild weather, and on dull cloudy days, and only put on during heavy rains, and when shading is necessary. Towards autumn the plants are to be returned to the greenhouse.

BACKHOUSIA. [Myrtaceæ.] Greenhouse evergreen shrubs. Soil, peat and loam. Propagated by cuttings of half-ripe shoots in sand under a bell-glass. *B. myrtifolia* greenhouse evergreen shrub, flowers pale yellow, in May.

BÆCKIA. [Myrtaceæ.] Greenhouse evergreen shrubs. Soil, sandy loam and peat. Propagated by cuttings, planted under a bell-glass in sand. *B. diosmæfolia*, *B. gracilis*, *B. saxicola*, and *B. virgata*, all flower white.

BALM. See **MELISSA**.

BALSAMINA. **BALSAM** [Balsaminaceæ.] Tender annuals. The garden Balsam, of which numerous handsome varieties are grown, is the *B. hortensis*. This requires a rich compost of loam and vegetable mould. Sow the seeds in pots about March, and put them in a cucumber frame or melon bed. As soon as they are up, and before they have time to draw, let them be potted out, one in a pot three inches across, and put in a declining or very moderate hotbed, where they must have air, to prevent their being drawn up, and must be so placed that the tops shall be near the glass; and the plants must be shifted every time the pots fill with roots, and in this way you go on moving them from one pot to another as they fill with roots. The heat of the bed must not be neglected; and the pots will have to be lowered, or the frame raised, as the plants increase in size. Some of the plants may be hardened off in May, and in June turned into the borders, where, if the soil be rich and the situation sheltered, they make a very pretty show, and seed freely. Those in pots have to be put into the greenhouse when they have grown too large for the frames; and if the house is a lean-to they should be turned every day, that one side may not be

drawn more than another. By constant shifting as the plants fill the pots, and keeping them near the glass, they can be grown very large, much branched, and the flowers will cover the branches all over. Compared with the double varieties of the common Balsam, all the other sorts are unimportant.

BANKSIA. [Proteaceæ.] Greenhouse evergreen shrubs. Soil, loam and peat in equal parts, with one-eighth sand. In potting put plenty of crocks at the bottom, to make a good outlet for the water: very careful watering is necessary. They should be examined daily. Cuttings of ripened wood strike root in sand under a bell-glass. When the cuttings are struck and established in small pots, grow them in the lightest part of the greenhouse, with plenty of air, and shift from one sized pot to another as they become filled with roots. There are many species cultivated, and all are curious, but only fit for large places.

BAPTISIA. [Leguminosæ.] Hardy perennials, with papilionaceous blossoms. Common loamy soil. Multiplied by division. *B. alba*, white; *B. australis*, blue; *B. mollis*, blue, and *B. villosa*, yellow, are the chief varieties.

BARBADOES LILY. See **HIPPEASTRUM EQUESTRIS.**

BARNADESIA. [Compositæ.] Cool stove shrubs, requiring to be kept cool and nearly dry in a close part of a greenhouse in winter. Soil, peat and loam. Propagated by cuttings in sand in gentle heat. *B. rosea*, flowers deep rose pink, in May.

BARNARDIA. [Liliaceæ.] Pretty greenhouse bulb. Soil, sandy loam. Propagated by offsets. The only one worth cultivating is *B. scilloides*.

BARTONIA. [Loasaceæ.] Half-hardy annuals and biennials. Soil, peaty and rather cool. Propagated by seeds; the annuals sown in March on a mild hotbed, and planted out in May, or sown in the open ground in April; the biennials sown in July, and kept in frames during winter. *B. aurea*, which is the principal sort cultivated, is very pretty.

BARYOSMA. [Rutaceæ.] Greenhouse evergreen shrubs, with strong-scented foliage. Soil, sandy loam and peat, in the proportion of one-third of the former to two of the latter.

Propagated by cuttings in sand under a bell-glass. *P. crenata*, *B. latifolia*, and *B. odorata*, are white. *B. serratifolia*, flowers pink.

BATATAS. [Convolvulacæ.] Free-growing and showy stove climbers, with fleshy roots, requiring to be kept moderately dry in the winter season, when dormant. Soil, rich open loam and leaf-mould. As their growth is rapid, and limited in duration, they should be placed in large pots when they begin to grow, the soil being used in a very rough, lumpy state. They do well planted out in a stove conservatory if their roots can be kept moderately free from damp in the winter season. Propagated by cuttings of the young shoots from the tubers in a hotbed.

BAUERA. [Hydrangeacæ.] Greenhouse evergreen shrubs. Soil, peat and loam. Propagated by cuttings. *B. humilis*, flowers red.

BEAR'S BREECH. See **ACANTHUS.**

BEAR'S EAR. See **ARCTOTIS.**

BEATONIA. [Iridacæ.] Greenhouse bulbs. Soil, rich sandy loam. Propagated by offsets, but of little use.

BEAUFORTIA. [Myrtacæ.] Greenhouse evergreen shrubs. Soil, peat and loam, lightened, if necessary, by the addition of sand. Cuttings may be planted in sand, and covered by a bell-glass: they root best in slight heat. *B. decussata*, flowers scarlet, in May. *B. purpurea*, flowers purple, in July.

BEGONIA. **ELEPHANT'S EAR.** [Begoniacæ.] Stove perennials, tubers, or soft-wooded shrubs, a very few growing in a warm greenhouse. Cuttings may be struck in sandy soil under a glass, in a hotbed or the propagating house, or in a vinery. When struck they should be potted in a compost of two-thirds loam and one-third peat and dung, and be placed in a hotbed, or the stove, or any warm house or pit. As they grow larger, and fill their pots with roots, they must be changed for others of a larger size. The tuberous sorts die down entirely in winter, and require then to be set away perfectly dry till the spring, when they should be again watered, and placed in a warm situation to excite them into growth. *B. albo-occinea*, evergreen, flowers white and scarlet, in May. *B. cinnabarina*, flowers orange scarlet, in

June. *B. coccinea*, evergreen, flowers scarlet, in August. *B. fuchsoides*, evergreen, flowers scarlet, in October. *B. manicata*, evergreen, flowers pink, in January. *B. nitida*, evergreen, flowers blush, in May. *B. Prestoniensis* and *B. Rex* may be added.

BEJARIA. [Ericaceæ.] Beautiful evergreen greenhouse shrubs. Soil, turfy peat. Propagated by cuttings in sand under a bell-glass. *B. æstuans*, rose colour. *B. coarctata*, pink. *B. ledifolia* and *B. racemosa*, flower pink.

BELLADONNA LILY. See AMARYLLIS.

BELLEVALIA. [Liliaceæ.] Hardy bulbs. Common soil. Propagated by offsets. *B. operculata*, flowers white. *B. Syriaca*, flowers orange and blue.

BELLIDIASTRUM. [Compositæ.] Dwarf hardy perennial, with daisy-like flowers. Soil, loam and peat. Increased by division.

BELLIS. DAISY. [Compositæ.] Hardy perennials. Common garden soil. The common sort grows wild everywhere—in pastures, by the roadside, on banks, and in almost every piece of waste land. Of the garden varieties, the most striking are the double white, double crimson, double striped, and a curious sort vulgarly called the Hen-and-Chicken Daisy, from the fact of small flower-heads coming all round the large ones. They are multiplied by parting the roots into single hearts; these will, in a season or two, multiply themselves again by spreading offsets all around them, and becoming large patches. They are often used as edgings to beds; and, next to Box and Thrift, perhaps they form the best, because they can be kept to a moderate width by merely cutting, as the edging of turf might be cut.

BELLIUM. [Compositæ.] Pretty, but minute, herbaceous perennials, suitable for pot culture, or for growing on rockwork, the flowers resembling the Daisy. Soil, sandy, with a fourth part peat. Increased by division; the annuals by seeds sown in March. The principal are *B. bellidioides*, *B. crassifolium*, and *B. minutum*, all blooming white.

BENTHAMIA. [Cornaceæ.] A hardy evergreen shrub in the warmer parts of England; but in the climate of London it can only be grown in a conservatory, or against a wall, for which, however, its yellowish flowers and reddish

strawberry-like fruit render it suitable. Good loamy soil. Propagated either by layers or from the seeds. *B. fragifera*, flowers yellowish, is the one in cultivation.

BERBERIS. BARBERRY. [Berberaceæ.] Handsome shrubs, mostly hardy, and nearly all evergreen. The common Barberry, *B. vulgaris*, is deciduous, grows well in any soil, and, besides being bushy in itself, throws up suckers from its roots like a thicket. If the beauty of the shrub is to be preserved, these suckers should be removed as fast as they come up; and if taken off properly, with a portion of root to them, they form young plants. Although there is not a shrub more decidedly shrubby, it can be formed into a pretty standard. Young suckers may be supported with stakes until they run up to the height required, all their side-shoots being removed before they advance much in growth; the top may then be taken off, and a few of the lateral branches encouraged close to the top; these, shortened before they grow much, cause other laterals to grow, and a good head may be formed in a short time. Generally a deep sandy loam is desirable. Propagated by cuttings in autumn, by grafting in the case of rare sorts, and by seeds where large quantities are reared.

One set of the Barberries have been called *Mahonias*. These are beautiful dwarf evergreen shrubs, with bright, shiny foliage, growing thick and rich, and bearing beautiful close bunches of bright yellow flowers in the spring, succeeded by rich purple fruit. There is hardly a prettier set of evergreens in cultivation. They afford a very striking variety in the foliage of a mixed clump; but, as the plants feather down to the ground, there should be nothing to hide them: on this account they make excellent lawn plants. They bear round, bright purple fruit, which looks as pretty as the flowers; and the plants, which do not grow higher than three or four feet in general, and are a good while reaching that height, are handsome without either flowers or fruit. They are multiplied by suckers, which may be taken off in the autumn. They also strike freely, and may therefore be raised from cuttings; but of late they have been chiefly raised from seeds, which yield a much greater variety of foliage than the several enumerated sorts exhibit. The seed should be washed out of the soft berries and dried; then a bed, with a portion of turfy peat

dug among the ordinary soil, should be prepared, and the seed sown very thinly indeed upon it, and raked in. When it comes up let it be cleared of weeds, and in very dry weather occasionally watered. They may remain until large enough to plant out a foot apart, for if they have not room they soon draw up ugly. Here they have only to be kept clean till they are large enough to plant where they are to stand. Except where otherwise specified, those named below are evergreen. *B. aquifolia*, flowers yellow. *B. Bealei*, yellow. *B. Darwinii*, deep orange. *B. dulcis*, yellow: these are hardy. *B. empetrifolia*, half hardy, yellow; *B. fascicularis*, half hardy, yellow; *B. Fortuni*, hardy, yellow; *B. glumacea*, hardy, yellow; *B. Nepalensis*, half hardy, yellow; *B. repens*, hardy; *B. trifoliata*, half-hardy deciduous, yellow; *B. trifurca*, half-hardy evergreen; *B. vulgaris*, hardy deciduous, yellow, are all fine; and to these may be added *B. intermedia*, *B. Japonica*, *B. glycinifolia*, and *B. Newbertii*.

BETONICA. BETONY. [Labiatae.] Hardy perennials. Soil, common garden mould. Propagated by division. *B. grandiflora*, purple; *B. incana*, flesh colour; *B. nivea*, red; and *B. orientalis*, light purple, are the principal.

BIGNONIA. TRUMPET FLOWER. [Bignoniaceae.] Climbing shrubs, mostly stove plants, which we omit: one or two are more hardy. To have them fine they must be planted out in peat and loam, and the branches trained at full length. They mostly bloom on short shoots, produced from the well-ripened buds of the previous year's wood. Propagated by cuttings in sand in a hotbed, or by layering. *B. capreolata* does well on a wall, and flowers red, in June. *B. radicans major* is fine. See also **TECOMA**.

BILLARDIERA. [Pittosporaceae.] Greenhouse evergreen climbers, the flowers succeeded by handsome berries. Soil, peat and loam in equal quantities. Propagated by seeds, or by cuttings placed in a slight heat. *B. angustifolia*, *B. longiflora*, and *B. scandens*, all flower creamy.

BLADDER FERN. See **CYSTOPTERIS**.

BLADDER SENNA. See **COLUTEA**.

BLANDFORDIA. [Liliaceae.] Beautiful greenhouse perennials. They should have a very free, open compost, consisting of sandy loam and peat earth, and require large-

sized pots, well drained, to grow them to perfection. Increased by dividing the suckers, as well as by seeds. The principal are *B. grandiflora* and *B. marginata*, which flower orange red, and *B. nobilis*, which flowers crimson.

BLECHNUM. [Polypodiaceæ.] Elegant ferns. The hothouse and greenhouse kinds grow well in turfy peat. The hardy species, a very elegant plant for outdoor rockwork, prefers to grow where there is some degree of moisture and shade; it also requires a peaty soil, and is increased by division. The sorts chiefly grown are *B. australe*, greenhouse; *B. cartilagineum*, greenhouse; *B. hastatum*, greenhouse; *B. spicant*, hardy; and *B. triangulare*, greenhouse.

BLETIA. [Orchidaceæ.] Stove or greenhouse perennials. Some of the species, though reckoned as stove plants, may be grown in a warm frame or greenhouse. They require to be kept dormant and nearly dry through the winter, and removed to a somewhat warmer place in February, when they will commence growing. Soil, turfy peat, light loam, and decayed cowdung. Propagated by division.

BLUMENBACHIA. [Loasaceæ.] Half-hardy annuals and perennials, more curious than beautiful. They require to be sown in pots in March, and, when large enough, planted out where they are to bloom, or potted and trained in some way. Rich light garden soil.

BOMAREA. [Amaryllidaceæ.] Very handsome twining greenhouse perennial, with fleshy roots, allied to the *Alstroemerias*. Soil, deep light loam, or loam and leaf-mould in equal parts. Propagated by division or by seeds. Except *edulis*, all the following species will live in a dry situation out of doors if planted deep enough to be beyond reach of frost; they lie dormant in winter, and spring up with vigour late in the spring. *B. acutifolia*, flowers red and orange. *B. edulis*, stove perennial, flowers red. *B. salsilla*, greenhouse, flowers purple, with a dark and light eye.

BONAPARTEA. [Bromeliaceæ.] Stove perennials, with decurved rush-like leaves from a centre. Soil, sandy loam, requiring a largish-sized pot. Increased by seeds, or by divisions of the offshoots. The one cultivated is *B. juncea*.

BORAGO. **BORAGE.** [Boraginaceæ.] Hardy annuals, biennials, and perennials. The common Borage, a gay annual,

is one of the best flowers to sow in the neighbourhood of bees, for it is said they derive more nourishment from it than from any other flower that blows. Good garden soil. Propagated by seeds, which may be scattered over the surface and raked in, and the plants afterwards thinned where they are too much crowded. The perennials may be multiplied by parting the roots.

BORBONIA. [Leguminosæ.] Greenhouse evergreen shrubs, with papilionaceous flowers. Not very common. Soil, peat and loam. Propagated by cuttings in sand under bell-glasses.

BORONIA. [Rutaceæ.] Beautiful evergreen greenhouse shrubs. Soil, sandy loam one part, and turfy peat two parts. Propagated by cuttings of the ends of the shoots, planted in sand under a bell-glass. The glasses will require to be wiped dry every morning, and when the cuttings begin to grow they may be removed an hour every day. The cuttings, when struck, should be planted singly in three-inch pots, one-third of the pots being filled with broken crocks, or potsherds, to secure good drainage; and as these small pots are filled with roots they may be exchanged for larger ones. If the object is to keep the plants short and bushy, take the top off to encourage lateral shoots, and as these get long top them also; but they naturally grow very handsome and pyramidal, with enough lateral shoots to form handsome, well-proportioned shrubs. The plants must have plenty of air in mild weather; but if set out in summer with other greenhouse plants, and neglected, they are apt to become discoloured in the foliage, which is rarely recovered. They are, in fact, as miffy as heaths, and if the watering be neglected, the effect is almost immediately seen. One watering too many is pretty nearly as bad as one too few; therefore they ought not to be watered by rule, but examined every twenty-four hours, and if they are damp they require no watering that day; if otherwise, they do require it. When they are watered, all the compost must be wetted—not merely half an inch of the top, for that is useless. *B. alata*, flowers rose colour. *B. Drummondii*, flowers pink. *B. serrulata*, flowers rose pink. *B. tetrandra*, flowers pale purple. *B. triphylla*, flowers pink.

BOSSIÆA. [Leguminosæ.] Ornamental greenhouse evergreen shrubs, with papilionaceous flowers. Soil, three-fourths

turfy peat to one-fourth sandy loam. Propagated by cuttings in sand under bell-glasses. They are very sensitive of having too much or too little water. *B. disticha*, flowers orange-yellow. *B. disticha plumosa*, *B. paucifolia*, and *B. cordifolia*, are also grown.

BOTTLE GOURD. See LAGENARIA.

BOUVARDIA. [Cinchonaceæ.] Handsome small subshrubs, mostly greenhouse plants. Some of the species produce a profusion of scarlet blossoms when planted out for the summer in a bed of good peat earth in the flower garden. Of this habit are *B. triphylla*, and a variety of it called *splendens*. The other greenhouse kinds require similar treatment: the stove species are not of much importance. The roots must be taken up in autumn, and potted and kept rather dry in a greenhouse; and in spring excited in a dung-frame, and hardened off afterwards to plant out as soon as danger from frost is past. These kinds are best propagated by pieces of the thicker roots an inch or two long, set round against the side of a pot, just covered with soil, and the pots plunged in a dung-frame. When they begin to grow up they should be potted separately: they grow well in a compost of turf peat and loam. We may grow also *B. flava*, yellow, and *B. longiflora alba*.

BOX. See BUXUS.

BRACHYCOME. SWAN DAISY. [Compositæ.] Pretty half-hardy annuals. Soil, rich light earth. Propagated by seed, which may be sown in heat about March, and when large enough planted out in the borders or bed six inches apart; or it may be sown thinly out of doors in April, and be thinned out, but it is much later in general than it is when sown in heat and planted out in May. *B. iberidifolia*, blue, is very pretty grown in pots.

BRACHYSEMA. [Leguminosæ.] Greenhouse evergreen climbing shrubs, with papilionaceous flowers. Soil, peat and loam in equal proportions, made porous, if necessary, by the addition of sand: it must be well drained. Seeds or cuttings are available for propagation. It is a beautiful plant for the pillars of a greenhouse, near the front, where they are well exposed to light. *B. latifolium*, flowers crimson. *B. villosum*, flowers crimson.

BRAVOA. [Amaryllidaceæ.] A pretty greenhouse or half-hardy bulb. Soil, light rich loam. Propagated by offsets.

BREAD TREE. See **MELIA.**

BRISTLE FERN. See **TRICHOMANES.**

BRIZA. **QUAKING GRASS.** [Gramineæ.] One of the few grasses which are admissible to the flower garden, bearing roundish, drooping, dangling, chaffy-like clusters of flowers. Hardy annuals. The seeds may be sown in common soil in March or April.

BRODIÆA. [Liliaceæ.] Pretty, slender, half-hardy bulbs. Light rich soil. Propagated by offsets. The chief are *B. Californica*, *B. congesta*, and *B. grandiflora*, all of which flower bluish.

BROWALLIA. [Scrophulariaceæ.] Pretty greenhouse annuals or shrubs. The annuals grow in light rich soil, and are increased by seeds sown in March in a hotbed, with other tender annuals. The shrubs grow in peat and loam in equal proportions, and are propagated by cuttings placed in a gentle heat. The best are *B. grandiflora*, annual; *B. Jamesoni*, greenhouse sub-shrub; and *B. speciosa*, annual.

BRUGMANSIA. See **DATURA.**

BRUNIA. [Bruniaceæ.] Greenhouse evergreen shrubs, with heath-like leaves. Their habit is elegant, but they possess no other beauty. Soil, sandy peat and loam. Propagated by cuttings. There are several species introduced, all of similar habit.

BRUNONIA. [Brunoniaceæ.] A very pretty greenhouse perennial. Soil, sandy loam, two parts, with one part each of peat and leaf-mould; the pots well drained. Propagated by division or seeds.

BRUNO'S LILY. See **CZACKIA.**

BRUNSFELSIA. [Scrophulariaceæ.] Showy stove evergreen shrubs. Soil, turfy peat and loam in equal proportions, with sand. Propagated by cuttings planted in sandy soil, and put in a moist heat. The only two cared for are *B. Americana*, pale yellow, and *B. nitida Jamaicensis*, yellow.

BRUNSVIGIA. [Amaryllidaceæ.] Showy greenhouse bulbs. They require much pot room, and a very rich, well-drained, loamy soil. The culture of these and other bulbs

should be seasonal; that is, the foliage should be grown to as perfect a state as possible, and then well ripened, and the bulbs dried and rested for some weeks; subsequently the plants should be again watered and excited into growth, when the bloom appears. They increase by means of the offsets from the bulbs. The principal ones grown are *B. grandiflora*, pink; *B. minor*, pink; and *B. multiflora*, red.

BRYANTHUS. [Ericaceæ.] Pretty diminutive evergreen under-shrubs, requiring shelter rather from heat and dryness than from cold. Sandy peat soil. Increased by cuttings in sand under bell-glasses, and kept quite cold.

BRYOPHYLLUM. [Crassulaceæ.] A curious succulent greenhouse plant, with an upright stem, opposite leaves, and the flowers in a terminal spreading bunch. It requires to be kept warm and dry in winter, like *Crassulas* and other succulents, and is interesting from the fact that the leaves, laid flat on a pot of soil, will produce a number of young plants from the indentations on their margins, by which means it is readily propagated.

BUCKTHORN. See **RHAMNUS.**

BUDDLEA. [Scrophulariaceæ.] Evergreen shrubs. There are many stove and greenhouse species, which, though pretty, are of little importance in cultivation. *B. Lindleyana*, a species requiring the protection of a wall or a cold greenhouse, and *B. globosa*, a fine hardy shrub, are the most desirable. They all grow freely in a light loamy soil, and may be propagated by cuttings or layers.

BUGAINVILLÆA. [Nyctaginaceæ.] Stove shrubs. *B. spectabilis* is a fine scrambling evergreen, growing very freely in fibry, loamy soil, but seldom flowering until it has attained some age and size. It is propagated readily by cuttings in sand. The beauty of this plant resides in the large rosy-purple bracts which surround the flowers.

BULBINE. [Liliaceæ.] Greenhouse perennial herbs, in some cases bulbous. Soil, sandy loam, well drained. Propagated by offsets or division.

BULBOCODIUM. [Melanthaceæ.] Beautiful dwarf hardy crocus-like bulbous plants. Soil, sandy loam. Increased by offsets. The chief are *B. vernum*, purple; and *B. versicolor*, lilac and yellow.

BUPHTHALMUM. OX-EYE. [Compositæ.] Shrubby and herbaceous plants, the former increasing by cuttings, the latter by division or by seeds, and all growing in a soil of equal parts sandy loam and leaf-mould. There are many varieties.

BUPLEURUM. HARE'S EAR. [Umbelliferæ.] Hardy annuals or perennials, of no horticultural importance.

BURCHARDIA. [Melanthaceæ.] Greenhouse perennial. Soil, sandy peat, with abundant moisture. Increased by division. *B. umbellata*, flowers white.

BURCHELLIA. [Cinchonaceæ.] Evergreen shrubs, requiring a temperature intermediate between the stove and greenhouse. Soil, loam and peat, of open texture. Propagated by cuttings in sand in a gentle heat. *B. Capensis*, with flowers light red, is the only one grown.

BURNET. See SANGUISORBA.

BURTONIA. [Leguminosæ, § Papilionaceæ.] Handsome small evergreen greenhouse shrubs. Soil, three-fourths light peat, one-fourth sandy loam, with sand and charcoal lumps: careful watering. Propagated by cuttings in sand under a bell-glass, or seeds. The principal are *B. conferta*, *B. pulchella*, and *B. villosa*, all purple.

BUTCHER'S BROOM. See RUSCUS.

BUTOMUS. FLOWERING RUSH. [Butomaceæ.] Beautiful hardy perennial aquatics. They should be planted on the margin of a pond or piece of water, in the muddy bank, and soon establish themselves, spreading by means of suckers from the root, which afford means of propagation.

BUXUS. Box. [Euphorbiaceæ.] Hardy evergreen shrubs, remarkably neat both in habit and foliage. There are many varieties of the common tree Box, *B. sempervirens* (which, however, is a shrub), and of these the broad-leaved and gold-striped are the best. They grow in common garden soil, preferring loam. Increased by layers or cuttings planted in August. There have been two or three Chinese varieties recently introduced.

CABOMBA. [Cabombaceæ.] A small interesting greenhouse aquatic. Shallow water, with a layer of rich loam at bottom. Increased by division. Requires to be rested in winter.

CACALIA. [Compositæ.] This genus consists partly of

curious succulent plants (sometimes called *Kleinia*), and partly of herbaceous plants, among which are two pretty hardy annuals (sometimes called *Emilia*). Of this there are many varieties, as *angustifolia*, narrow-leaved; *argentea*, silver variegated; *aurea*, gold-variegated; *marginata*, yellow-edged; *myrtifolia*, myrtle-leaved; *suffruticosa*, sub-shrubby, the latter being the sort commonly used for edging to garden walks. The seeds of the latter may be sown in the open borders in April, and the plants come into bloom during summer. The succulent species grow in sandy loam and brick rubbish, and need but little water: the cuttings of the stems strike root most certainly after being partially dried before planting.

CACTUS. See CEREUS, ECHINOCACTUS, MAMMILLARIA, MELOCACTUS.

CAIOPHORA. [Loasacæ.] Pretty biennial twining plants, which have been separated from *Loasa*. To be had in perfection, they should be sown in June or July, and kept through the winter in an airy greenhouse, and then planted out in May, to cover trellis-work, or trained around stakes in large pots, if that be preferred. They are readily increased by seed. Like the Loasas, they have stinging hairs. They usually bloom throughout the summer; or, if raised as above directed, will also be in blossom through the spring months. *C. lateritia* is a greenhouse climbing biennial, with flowers brick red.

CALADENIA. [Orchidacæ.] Curious and very pretty greenhouse perennials, of a race which is found difficult of culture. They should be potted in a compost of loam, peat, and sand, and should be kept in a cool greenhouse. They inhabit Australia, whence the roots are occasionally imported, but they are seldom long preserved alive. Several species are known.

CALADIUM. [Aracæ.] Stove herbaceous plants, remarkable for their fine conspicuous foliage. *C. bicolor*, a small-growing kind, is one of the most desirable in a small garden: the leaves of this have about half the surface in the centre coloured red. The plants should be potted in rich light loamy soil, and kept in the stove. In winter they are best kept rather dry, but they should be kept moist

while growing. Propagated by division of the plant. They are closely related to the *Arums*, a familiar instance of which occurs in the "lords and ladies" of our hedge-banks. There are numerous species in cultivation.

CALAMINTHA. CALAMINT. [Labiatae.] Pretty herbaceous perennials. Common soil. Propagated by division.

CALAMPELIS. [Bignoniaceae.] Handsome free-growing half-hardy climbers, well adapted to cover a considerable space out of doors in summer, or to intermix with other more close-growing species on a trellis. The blossoms are tubular, orange-coloured, in loose panicles, and are very showy. Requires protection in winter. Light loamy soil. Propagated freely by seeds. It is sometimes called *Eccremocarpus*.

CALANDRINIA. [Portulacaeae.] Pretty herbaceous plants. *C. discolor* and *C. grandiflora* are best grown as biennials. *C. speciosa* and *C. procumbens* are very pretty treated as annuals, and flower best in dry, hot situations, with their branches trailing over stones. The latter should be sown either in pots during March, to be planted out in May, or in the open border some time in April. The former, if sown about August, and kept over winter in the greenhouse, flower vigorously in the following summer. All like a light soil of sandy loam, peat, and leaf-mould. Seeds are the best means of propagation. They flower best in hot, dry, sunny situations; in fact, their blooms only expand to the sun, but when expanded their rich purple colour is very attractive.

CALANTHE. [Orchidaceae.] Herbaceous perennials, with very beautiful blossom. Soil, peat and loam, mixed with sand and charcoal lumps, well drained, with plenty of water whilst growing. Increased by division. There are numerous very handsome stove species.

CALATHEA. [Marantaceae.] *C. zebrina* is one of the handsomest stove plants in existence in respect to its foliage, which is large, velvety, and beautifully variegated with dark green and a paler tint. It is a perennial, growing freely in a light loamy soil, and increasing by division. The flowers of this species are of a purple colour, and are produced from April to July; but the leaves are the most conspicuous part.

CALCEOLARIA. SLIPPERWORT. [Scrophulariaceae.] Shrubs and herbs, mostly requiring greenhouse protection,

though some are nearly hardy; the majority are showy, and grow freely in the open air during summer. Within the last ten or fifteen years great advance has been made in the properties of this curious flower; and it is to be regretted that the finest quality of the plant has been lost sight of, through the ill-advised plan of giving prizes for the worst possible habit of the plants. Shrubby Calceolarias are very handsome objects, while the herbaceous kinds have larger, coarser, and worse-shaped flowers; and prizes have been given for these as well as the others. The consequence has been, the production of a race that are neither the one nor the other. Calceolarias are, strictly speaking, greenhouse plants, and will bear no frost. They are generally kept, until they are rising for bloom, in pits, where frost can be kept out by mats or other coverings, for anything short of frost will not hurt them. They are propagated by cuttings of the side-shoots, which root freely if planted in light sandy peat about October; but they do not root freely if planted in spring or summer. Seeds may be sown in pans or wide-mouthed pots in August, and the seedlings potted off, six or eight in a pot, when large enough; and after this, when they have got forward enough, put singly in small pots, to be changed from time to time for larger: these bloom early the following year. Later blooming plants may be had by sowing in spring. The stems require no support unless the plants are to be carried out, in which case they require a stake to every stem. The soil should be light rich loam, well drained. *C. integrifolia* and its varieties, *angustifolia* and *viscosissima*, are brilliant flower-garden dwarf shrubby plants, bearing large masses of yellow blossoms from May throughout the summer. The florist's varieties are very numerous, and are constantly undergoing change and improvement.

CALENDULA. MARIGOLD. [Compositæ.] Showy hardy or half-hardy annuals and greenhouse shrubs. The hardy annual species succeed in common garden soil, and are readily increased by seeds, which should be sown in April. The half-hardy sorts should be reared on a slight hotbed in April, and planted out in May. The common Marigold is very brilliant. The Cape Marigolds open only under the influence of sunshine. The shrubby greenhouse kinds are unimportant.

CALIPHURIA. [Amaryllidaceæ.] Pretty bulbous plants, requiring a greenhouse or warm pit, sandy loam and peat compost, and increased by offsets.

CALLA. See **RICHARDIA.**

CALLIANDRA. [Leguminosæ, § Mimosæ.] Beautiful stove evergreen shrubs, with elegant pinnated foliage. Soil, loam and peat. Increased by cuttings in sand. The best are *C. Harrisii*, rose colour; *C. Houstoni*, purple; *C. pulcherrima*, scarlet; *C. Tweediei*, crimson.

CALLICHROA. [Compositæ.] A dwarf hardy annual. It grows in common garden soil, and is increased by seeds, which should be sown in March and April.

CALLICOMA. [Cunoniaceæ.] A handsome greenhouse evergreen shrub. Soil, sandy peat. Propagated by cuttings in sand under a bell-glass.

CALLIOPSIS. [Compositæ.] Extremely showy hardy annuals, formerly known as *Coreopsis*. They may be sown in gentle heat to forward them, pricked out five or six in a pot, and kept growing in the house until the middle of May, when the balls of earth may be turned out whole, the plants being undisturbed; but it is better to sow in the open border. When sown thus it must be in April, and these will come into flower in July, a month after those turned out of pots in a forward state. This flower ought, of course, to be planted behind shorter things, about even with Sweet Peas, branching Larkspurs, and things of similar growth. It does not make a bad appearance mixed with branching Larkspurs on large borders, for both show only their flowers, the stems of neither being large enough to interfere with their abundant bloom, and the beautiful blue of the one contrasting well with the orange-yellow, black-eyed flowers of the other.

CALLIPRORA. [Liliaceæ.] Pretty little hardy bulbous plants, that should be planted in a sheltered peat border. Increased by offsets.

CALLIPSYCHE. [Amaryllidaceæ.] Handsome greenhouse bulbs. Soil, light rich loam. Increased by offsets.

CALLISTACHYS. [Leguminosæ, § Papilionaceæ.] Large and somewhat coarse evergreen greenhouse shrubs, with showy bunches of yellow, butterfly-shaped flowers. They are

of easy culture in a compost of peat and loam, and may be increased either by cuttings or by seeds.

CALLISTEMON. [Myrtaceæ.] Beautiful evergreen greenhouse shrubs, related to, and requiring the treatment of, *Melaleuca*. The flowers are like bunches of coloured threads set close together, so as to form the appearance of a bottle-brush. *C. lanceolatus*, flowers crimson. *C. viridiflorus*, flowers green.

CALLISTEPHUS. CHINA ASTER. [Compositæ.] The China Aster, formerly called *Aster Chinensis*, and subsequently *Callistemma hortense*, is a favourite annual. The German varieties, with flowers single, semi-double, or double, self-coloured, red, pink, dark and light purple, or striped in all ways, form a varied and striking feature towards the end of the summer wherever they are introduced. To have them in perfection, plant them in half well-decomposed dung and half loam, or add plenty of manure to the soil of the garden. Sow them in a hotbed in February or March; plant them out in May. If planted in beds—in which way they are very effective—let the bed be supplied with a good dressing of dung, and plant them a foot apart every way; keep them clear of weeds, and in dry sultry weather let them have plenty of water. They will bloom much finer treated in this way, though, when planted about the borders wherever there happens to be room, they add greatly to the beauty of the garden, because their colours are so varied. The best flowers should be marked for seeding.

CALLUNA. HEATHER. [Ericaceæ.] Pretty dwarf hardy evergreen shrubs. Soil, peat. Increased by layers or by seeds.

CALOCHORTUS. [Liliaceæ.] Very beautiful bulbous plants, which appear to be difficult of cultivation. They seem to do best when planted out in a frame into a bed of prepared soil, consisting of sandy peat, with about a fourth part of loam added. In this way they can readily be kept dry and cool in winter during their resting season. Propagated by offsets.

CALOPHACA. [Leguminosæ, § Papilionaceæ.] Hardy deciduous shrub; very ornamental when grafted half standard high on Laburnum. Loamy soil. Propagated by seeds, or cuttings, or grafts.

CALOSTEMMA. [Amaryllidaceæ.] Pretty greenhouse bulbs. Soil, sandy loam, with decayed manure and leaf-mould, made free by about one-eighth of gritty sand. The plants may be rested in a cold pit free from frost during winter, and in spring excited in a warm pit or greenhouse. Propagated by offsets. The best are *C. album*, white, and *C. purpureum*, purple.

CALOTHAMNUS. [Myrtaceæ.] Beautiful evergreen greenhouse shrubs, allied to Callistemon, and requiring the same kind of management.

CALTHA. MARSH MARIGOLD. [Ranunculaceæ.] Hardy perennial water plants, of easy culture, propagated by dividing the roots. They are suited for planting on the margin of a piece of water, where their bright-coloured blossoms are very showy. The most ornamental is the double-flowered variety of our wild species (*C. palustris flore-pleno*). Though growing best in the immediate vicinity of water, and most appropriate for rough scenery, they do very well in other situations if the soil is damp; and the variety above named is sufficiently showy to make it worth introducing among hardy perennials in a mixed border.

CALYCANTHUS. ALLSPICE. [Calycanthaceæ.] Hardy deciduous wall shrubs, remarkable for the fragrant spice like odour of their brownish blossoms. Moist, light, loamy garden soil. Increased by layers. The best are *C. floridus*, *C. fragrans*, and *C. lutea*.

CALYSTEGIA. BEARBIND. [Convolvulaceæ.] Convolvulus-like twining or trailing perennial plants, hardy, or mostly so. Their culture is extremely simple: a fragment of the perennial root merely requires to be placed in the ground, and it will soon establish itself, and if not checked, spread and become a troublesome weed. Sandy loam is most congenial to them. *C. soldanella* should be occasionally watered with salt water, and *C. pubescens* (double) is worth a place.

CALYTHRIX. [Chamælauciaceæ.] Elegant greenhouse evergreen shrubs. Soil, peat with one-third sandy loam. Propagated by cuttings in sand, under a bell-glass. *C. glabra* and *C. virgata* flower white.

CAMASSIA. [Liliaceæ.] A strikingly handsome hardy

bulb. It grows best in a cool shady peat border, and is usually increased by offsets. *C. esculenta*, flowers blue, in June.

CAMELLIA. [Ternströmiaceæ.] The *Camellia Japonica*, or Japan Rose, is one of the most beautiful of all evergreens for the greenhouse or conservatory. It propagates freely by cuttings. The single-flowering kinds are increased in this way to be used as stocks, on which the finer varieties are multiplied by grafting, budding, or inarching. Cuttings of the last year's wood should be taken about three inches long, cut below a joint, the lower leaf removed, and then planted firmly in pots of sandy loam: they root most readily with slight bottom heat. Pot them, when rooted, singly into the smallest-sized pots (sixties), and keep them in a frame well secured from frost. In this they are kept, being repotted as they require it, until they are wanted as stocks. The choice varieties should be kept in very light pits: they are the better for growing without artificial heat, but frost must be excluded. After they have done flowering they should be kept in the greenhouse, or in pots properly protected; or in a canvas house, which is better than either, until they have made their growth, when a sheltered outdoor situation, free alike from sun and covering, and with plenty of air, will suit them best. At the beginning of September they must be placed in winter quarters. They like plenty of air at all times; but while growing it is necessary to keep them from draughts of cold or drying air, which cause them to curl and become stunted, and so spoil all the beauty of the new growth. Grafting, budding, and inarching should be done just before the buds start on the sort to be multiplied, and just as the stock begins its growth. The proper soil is two-thirds loam, one-sixth turfy peat, and one-sixth decomposed dung; these should lie together for some time, out of the reach of heavy rains, and should be thoroughly mixed. They are readily raised from seed, if the seeds are put in as soon as ripe, and placed in the greenhouse. When the seedlings have advanced one season, and the first year's wood is ripened, the bloom may be very much hastened by inarching the top upon a strong stock; but this is only worth doing in the case of such as indicate novelty. The plants require to be kept scrupulously clean. Camellias may be grown against a north wall, in the open air

in the climate of London, provided their roots and stems are sheltered by a covering of litter or straw. The leading species are *C. reticulata*, rose; *C. Sasanqua*, pink (of this species there are varieties with double white and double red blossoms); *C. ochroleuca*, yellow; and *C. myrtifolia*, rose. The florist varieties are endless.

CAMPANULA. BELL-FLOWER. [Campanulaceæ.] Very handsome herbaceous plants, mostly perennial and hardy. The annuals should be sown in the borders in March and April, the seed being very slightly covered on account of its small size. The perennial hardy kinds are increased by seeds or division, and require no peculiar treatment. The biennials are sown in May and June, for blooming the following year. Good garden soil suits them all, but it should be rather rich for the Canterbury Bell. The Chimney Campanula is one of the most handsome for pot culture, and requires the protection of a frame or greenhouse. The compost for it should be loam from rotted turves one-half, dung from a spent hotbed one-fourth, and turfy peat one-fourth, well mixed together. Select a small healthy plant, place it in a four-inch pot, and grow it in a frame. If it should throw up a stem for bloom take off the top at once, and when the pot is full of roots change it for a six-inch pot, using the same kind of compost. Thus continue to grow it, changing the pot for a larger as fast as the roots fill up the one it is in. The second season it may bloom; but continue the changing into larger pots, and when it is three years old it will produce many spikes of bloom, which should be spread fan-like on a trellis, and in this state it completely covers a fireplace or a window with its numerous beautiful blue flowers. The smaller perennials make beautiful rock plants. The varieties are numerous, and all pretty.

CAMPTOSEMA. [Leguminosæ, § Papilionaceæ.] Warm greenhouse or stove evergreen climbing shrub. Soil, peat and loam. Increased by cuttings. *C. rubicundum* is a fine conservatory climber.

CANARINA. [Campanulaceæ.] A greenhouse herbaceous perennial. Propagated by cuttings or by division, and growing in a mixture of light peat and loam in about equal parts. The plants are the better for a little extra

warmth in the early stages of growth. *C. campanulata*, flowers orange, in February.

CANDLEBERRY MYRTLE. See MYRICA.

CANDOLLEA. [Dilleniaceæ.] Greenhouse evergreen shrubs. They sometimes ripen seeds, from which young plants may be raised if they are sown in pots, and kept in a frame or greenhouse until they vegetate; or cuttings may be rooted under a bell-glass. The proper compost is a mixture of equal parts loam and peat earth, with which an eighth part of sand may be mixed. They must be grown like other greenhouse plants as to temperature and air.

CANDYTUFT. See IBERIS.

CANNA. INDIAN SHOT. [Marantaceæ.] Stove perennial herbs, of considerable stature. The seeds are as large as sweet peas, and as hard as flint. Stove or hotbed heat is required to bring up the plants, which are tall, reed-like, with showy scarlet flowers. They grow well in loam and dung, and require large pots to grow them successfully. In April fill some well-drained pots with soil, and sow in them a couple of seeds, not more than half an inch deep; place these pots in a hotbed, and in a few days the plants will shoot up. Let them have water enough to keep them moist, and as they grow destroy the weakest plant, shifting the others by removing the balls whole into larger pots; and having kept them in the hotbed a day or two to establish them, remove them to the stove, or, if you have not a stove, to the greenhouse, where they will perfect their growth, though not so rapidly as in the stove. They perfect their seed in this country. The common *C. Indica* flowers well in warm situations, planted out in the flower-border, and is very effective both in its foliage and blossoms: for this purpose the plants are turned out about the middle of June. When once reared the plants may be perpetuated by division.

CANNABIS. HEMP. [Urticaceæ.] Hardy, and an annual in this country. Though insignificant in its flowers, the Hemp is yet a stately plant when grown freely, remarkable for its fine palmate foliage. It merely requires to be sown in rich garden soil, and the plants allowed to stand out separately. In wilderness scenery they would have a fine appearance

CANTUA. [Polemoniaceæ.] Greenhouse shrubs, some of them of great beauty. Soil, sandy loam and peat. Increased by cuttings in sand in a hotbed. The growth must be well ripened before they will produce blossoms.

CAPE JASMINE. See **GARDENIA.**

CAPE MARIGOLD. See **CALENDULA.**

CAPRIFOLIUM. See **LONICERA.**

CAPSICUM. **CHILI PEPPER.** [Solanaceæ.] Annuals requiring to be raised in heat, and transplanted, for the warmer months of summer, on to a warm border, or at the foot of a sunny wall; or shrubs requiring stove temperature. To the former class belongs the common cultivated Capsicum, whose ripe and unripe fruit enter variously into domestic cookery; to the latter belongs the true bird-pepper, or Chili. Cayenne pepper is made from the fruit of *Capsicum frutescens*. *C. grossum* is the best for pickling. All these plants like a rich light soil, and the shrubby ones must be kept constantly in the stove. The common annual species, though planted in warm situations in the open air, are brought to greater perfection in a greenhouse or under glass.

CARAGANA. [Leguminosæ, § Papilionaceæ.] Handsome hardy, and chiefly low-growing shrubs, the most interesting of which are kept grafted as standards in the nurseries, and make beautiful little pendent trees. The stock used is *C. arborescens*, which is increased by seeds. The rest may be increased by layering, and the spreading sorts are suitable for large rock gardens. Sandy, loamy soil.

CARDAMINE. **LADY'S SMOCK.** [Cruciferae.] Hardy perennials. Common moist soil. Increased by division. Except *C. pratensis*, single and double, they are of little moment; but these are ornamental on the margin of ponds.

CARMICHAELIA. [Leguminosæ, § Papilionaceæ.] A curious greenhouse shrub. Soil, sandy peat, with a third fibry loam. Propagated best by seeds. The side-shoots may be used as cuttings, planted in sand under bell-glasses.

CARNATION. See **DIANTHUS CARYOPHYLLUS.**

CAROLINA ALLSPICE. See **CALYCANTHUS.**

CARRION FLOWER. See **STAPELIA.**

CARTHAMUS. [Compositæ.] Hardy annuals. They

are best sown on a gentle hotbed in spring, and transplanted into the open borders in May. Rich garden soil.

CARUNCULARIA. See STAPELIA.

CARYA. HICKORY. [Juglandaceæ.] Hardy deciduous trees, with elegant pinnated foliage. Increased by seeds chiefly, and growing in any good garden soil.

CASSANDRA. See ANDROMEDA.

CASSEBEERA. [Polypodiaceæ.] Handsome ferns. Increased readily from the spores. Soil, turfy peat and sand, with a fourth part loam. The greenhouse kinds are *C. hastata*, *C. intramarginalis*, *C. pteroides*. The stove species of *Cassebeera* include some very elegant plants.

CASSIA. [Leguminosæ, § Cæsalpinæ.] A large genus, mostly shrubs, requiring stove heat: some of the species furnish the *senna* of commerce. They may be raised from cuttings, planted in sand under bell-glasses, in a moderate heat; and sometimes seeds are produced, from which, if sown in heat, vigorous plants may be obtained. The compost should be of sandy loam and peat mixed in equal proportions. They should not be too much excited, but grown on slowly. Upwards of two hundred species are known, and of these about eighty have been introduced.

CASSINE. [Aquifoliaceæ.] Greenhouse evergreen shrubs. Soil, loam and peat. Propagated by cuttings. Chiefly interesting as evergreen bushes.

CASSINIA. [Compositæ.] Evergreen greenhouse shrubs with a few exceptions. Soil, loam and peat. Propagated by seeds, division, or cuttings. *C. affinis*, white; *C. aurea*, yellow; *C. leptophylla*, white; and *C. speciosa*, yellow, are the best.

CASSIOPE. [Ericaceæ.] Pretty diminutive heath-like shrubs, related to *Andromeda*. Peat soil. A moist, cool, shady situation. Cuttings or layers.

CASTILLEJA. [Scrophulariaceæ.] Pretty, but scarcely cultivable perennials. Sandy peat soil. Increased by seeds or division of the root.

CATANANCHE. [Compositæ.] Hardy perennial free-growing plants, requiring ordinary garden soil. They are best propagated by seeds, and treated as biennials. *C. carulea*, flowers blue or white.

CATCHFLY. See *SILENE*.

CATMINT. See NEPETA.

CEANOTHUS. [Rhamnaceæ.] Hardy or half-hardy evergreen shrubs in so far as concerns all those most worthy of cultivation. They are particularly suited for planting against a wall, and are mostly of free growth and neat habit; the flowers numerous and showy. Propagated either by cuttings, which should be planted in sandy soil under hand-glasses, or by layers, which is the readiest way of obtaining strong plants. Planted against a wall or close fence, and trained over the surface, a considerable space will soon be covered by the numerous evergreen branches. They are not particular as to soil, but grow well in sandy loam; and, not being perfectly hardy, the situation ought to be a well-drained one. The Californian species may be considered as hardy in mild or even ordinary winters. *C. azureus*, pale blue; *C. dentatus*, blue; *C. pallidus*, pale blue; *C. papillosus*, violet blue; *C. rigidus*, blue; *C. verrucosus*, hardy evergreen shrub, pale violet blue, are all worth growing.

CEDRONELLA. [Lamiaceæ.] Half-hardy and greenhouse perennials, with long spikes of showy blossoms, growing in light loamy soil. Increased by seeds. They require to be kept dryish in winter, and should be protected in frames. One species, *C. triphylla* (formerly called *Dracocephalum Canariense*), is a greenhouse soft-wooded shrub, and grows freely in light loamy soil, and is increased by cuttings. It is a favourite on account of the balm-like scent of its leaves.

CEDRUS. CEDAR. [Coniferæ.] Hardy evergreen trees, growing in good loamy soil, and increased by seeds, or the rarer kinds by grafting. ORNAMENTAL TREES.—*C. Africannus* (Mount Atlas Cedar). *C. deodara* (the Deodar). *C. Libani* (Cedar of Lebanon). They are, perhaps, all varieties of one species, though sufficiently distinct for planting. *C. deodara robusta*, *C. crassifolia*, and *C. viridis* are, perhaps, distinct, and all beautiful.

CELOSIA. COCKSCOMB. [Amaranthaceæ.] The *C. cristata*, or Cockscomb, is a favourite old annual, taking its name from the extraordinary similitude of a small head of bloom to the comb of the domestic fowl. The plants require a hotbed to grow them to perfection; and he succeeds best, according to ordinary notions, who brings the flower-head the

largest. The seeds may be sown in March in a pot, and placed in the hotbed frame, where they are not long coming up: when four leaves are grown they may be potted singly into small sixty-sized pots, and, after having a little water to settle the roots, are to be replaced in the hotbed, moderately watered, and kept near the glass. By keeping them dry the plants get stunted, and the flower-heads soon show themselves. When these are first seen on the miserable-looking, half-starved plants, one would not fancy they could be brought to a showy state; but, to effect this, rich loam and dung are employed in equal quantities, and these diminutive plants are potted singly in pots of the thirty-two size, plenty of water is given, and the tops of the plants are brought up as close to the glass as possible. The heat of the bed is to be kept up to about 70° or 80° by day. The plants must not be allowed to touch the glass on any account. They will grow rapidly until they are too large for the pots, which must be then changed for larger sizes. If the plants were grown fast from the first, they would probably be eighteen inches or two feet high before the flower-heads appeared; but, by starving them till they show the flower, they do not afterwards grow much in height, but the flower-heads or combs will be enlarging from day to day, and will come very perfect specimens with care and attention. The other kinds are of less importance.

CELSIA. [Scrophulariaceæ.] Half-hardy showy biennials, of spiry habit. They may be sown in June in the open borders, and thinned out for flowering, or raised in nursery-beds and transplanted. They are hardy in light dry soils and favourable situations, but in cold, unfavourable places should be sheltered in a frame during winter. *C. orientalis* is a hardy annual.

CENTAUREA. CENTAURY. [Compositæ.] A large family, mostly hardy perennials, but including several hardy annuals. Some of them are showy plants for a mixed flower-border, but generally they do not rank high in modern gardens. The exceptions to this are principally among the annuals. These may either be sown in the open border about the end of March, and the plants thinned out subsequently to three or four in a patch, to be left for blooming,

or they may be sown with other annuals in a seed-bed, or in pots, for facility of transplantation, in the latter case being sown somewhat earlier, and coming earlier into flower. They bloom from June more or less onwards to September. The very numerous hardy perennial kinds, any of which are worth growing as common border flowers, grow well in the common soil of gardens, and are increased by division.

CENTRANTHUS. [Valerianaceæ.] Ornamental hardy perennials or annuals. The perennials are best raised from seeds, for, having but few thick woody roots, they do not well divide, like many other hardy perennials. The seeds should be sown in May on a bed of light, not over-rich soil, from which they may be transplanted to a nursery-bed as soon as large enough to handle, and will be fit to be transplanted in the autumn into the positions in which they are required to bloom the following year. Grows readily in common light garden soil. The annuals require to be sown in the open border in March or April, and like a rather moist soil.

CENTROCARPIA. [Compositæ.] Showy hardy perennials, requiring good light garden soil, and increased by root division.

CEPHALANTHERA. [Orchidaceæ.] Hardy herbaceous perennials. Peat and loam. Propagated by division.

CEPHALOTAXUS. [Taxaceæ.] Hardy evergreen ornamental tree, of yew-like appearance. Loam. Increased by grafting, or by seeds when obtainable. The only one grown is *C. Fortunei*.

CEPHALOTUS. NEW HOLLAND PITCHER-PLANT. [Cephalotaceæ.] This is a dwarf herb, among whose leaves, forming a tuft close to the ground, grow the curiously-formed bodies called pitchers, which constitute the chief interest of the plant, the flowers being small, and growing in a grass-like spike. It requires a temperature warmer than a greenhouse, and does very well in a stove, if not kept there in too hot and close a situation. It should be potted in chopped sphagnum and sand, and should be kept constantly wet, as it grows naturally in boggy situations. The tendency of this treatment being to souse and consolidate the soil, it should now and then be repotted in entirely fresh soil, so as to keep the latter in an open, healthy condition. If kept in any structure

that is much ventilated it should be covered with a bell-glass, which may be removed at night when the house is closed.

CERASTIUM. [Caryophyllaceæ.] Hardy perennials, of the simplest culture, propagating extensively by division, and spreading widely in dense masses over the ground. The larger-flowered species are desirable for rockwork. Among these are *C. alpinum*, *C. Biebersteinii*, *C. glaciale*, *C. grandiflorum*, *C. lanatum*, *C. latifolium*, and *C. tomentosum*, all of which are worth a place in ruins, &c. **ORNAMENTAL SHRUBS.**—*C. laurocerasus*, the common Laurel, well known as one of the best of all evergreens; and in early spring this, when it attains size and age, is furnished with long spikes of white blossoms, of which bees are fond. *C. Lusitanica*, the Portuguese Laurel, which, besides its ordinary use as an ornamental evergreen, is sometimes trained up formally with a straight bare stem, and a thick round head of branches like the orange tree, which it much resembles: in this state it may be made to impart to small garden plots that exotic effect which in princely gardens is obtained by the use of orange trees, and it becomes a substitute for these in winter.

CERASUS. CHERRY. [Rosaceæ.] The ornamental part of this genus comprises early-flowering trees and favourite evergreen shrubs. All free-growing plants in good garden soil, and propagated by seeds, by layers, or by budding. By some these are all included under **PRUNUS**.

CERATOSTEMA. [Vacciniaceæ.] Beautiful evergreen greenhouse shrubs. Peat and loam. Cuttings.

CERCIS. JUDAS TREE. [Leguminosæ, § Cassiææ.] Deciduous small trees, forming beautiful objects when in flower, the blossoms being produced before the leaves, and appearing about the same time as those of the Laburnum, the Guelder Rose, and the Hawthorn, with which they contrast admirably. They prefer a rather rich loamy soil, and require a sheltered situation. In many places they are planted against walls, which situation they well deserve. The seeds are sown in the spring, and produce plants which come to bloom in three or four years. The young plants require protection.

CEREUS. TORCH THISTLE. [Cactaceæ.] A large family of succulent plants, better known by the name of *Cactus*.

They are grotesque-looking objects when out of flower, having fleshy, more or less angular, lengthened stems, in which latter particular they differ from the *Echinocacti* and *Melocacti*, which are distinguished as "dwarf Cacti." The most gaudy of the genus is the *Cereus speciosissimus*, which has large splendid blossoms of a rich crimson scarlet, with a violaceous tint on the inner petals: the plants grow from five to eight or ten feet high, though they blossom when much smaller. *C. grandiflorus* has large yellowish-white flowers, that expand only at night. *C. flagelliformis*, the creeping *Cereus*, with its long, slender, drooping, tail-like stems, is another favourite. As objects of curiosity, *C. senilis*, the Old-man Cactus, which has a short, stout, upright, oblong stem, covered over with dense, hair-like, greyish, hanging bristles, like the grey head of an old man; *C. monstrosus*, an irregular fleshy mass, almost like a green rock; and *C. hexagonus*, a stout, erect species, attaining considerable height, and, when large, very remarkable, from its column-like appearance, may be specially mentioned. The soil best suited for these is two parts peat, one part broken potsherds, sifted through a coarse sieve, one part loam or old mortar rubbish, and one part dung; these all mixed well together, and perfect drainage secured. The plants should stand out of doors, in a sheltered situation, from the time they have done flowering till September, and then be removed to the greenhouse, all the parts of shoots that have no bloom-buds being cut back to just beyond the buds. If whole shoots are without these buds, and the shoot is not wanted to form a well-shaped plant, remove them, and cut back all those that spring out of the main stem to three bloom-buds, or, if they have none, to within two inches of the main stem. The plants should be confined to half a dozen or eight main stems, and while these are in health and vigour let none come up from the bottom: those that grow from the sides may be saved just so far as they have bloom, until the flowering is over, and should then be cut away within two inches of the stem. This mode of pruning will be proper for *C. speciosissimus* and those of similar habits. The *C. flagelliformis* is always best grown with the long slender branches drooping over the edge of the pot, and requires no pruning. The plants should be without

water from September till March; and when the buds begin to swell, water them, remove them to the coolest part of the stove, and there let them begin to open their flowers, which they may complete in the conservatory. While out of doors they are best under a south wall or some sheltered situation, where they may have all the sun: while there they will rarely want any water except in long-continued dry weather. Cuttings root so freely that if bits are left on the soil they will strike into it from the sides; they are, however, generally taken at the trimming time, and, after drying the cut end, put in a pot, to be only removed as they want more room. *C. grandiflorus*, the night-blooming *Cereus*, may be treated in a similar way in all respects; but until it gets pretty old it seldom flowers. Continue growing and shifting as it fills the pots, and when large enough let it remain till it flowers. The stems are often trained up the wall of the hothouse; but the plants are better in the greenhouse at rest, without water, from the time the year's growth is complete to the time the buds swell, when they should be trimmed back to the buds, and removed to a higher temperature; or, if they are trained on a wall, it ought to be in a conservatory, not so cold as a greenhouse, nor so warm as a stove. The creeping *Cereus* should be set on a shelf, or suspended, so that its long flail-like shoots may hang downward: they flower generally at the top, and, being altogether smaller, do not require such large pots as the others. This sort does well in the window of a living-room. The curious species may be potted in moderate-sized, well-drained pots of loam and broken crocks or old mortar, and require but little water, and seldom to be shifted. All the *Cereuses* may be kept in a dry warm greenhouse in winter, but do best when they have the warmth of a stove during the growing period.

CERINTHE. *HONEYWORT.* [*Boraginaceæ.*] Hardy annuals of coarse habit, requiring to be sown in March where they are to flower, and thinned out to three or four plants in a patch as soon as they are large enough to set crowded. Common soil.

CEROPEGIA. [*Asclepiadaceæ.*] Succulent greenhouse and stove plants, more curious than beautiful.

CESTRUM. [*Solanaceæ.*] Greenhouse shrubs, few of

which are of much horticultural importance. *C. aurantiacum* is an exception, its showy orange-coloured flowers being succeeded in winter by ornamental white berries. They increase readily by cuttings in a gentle heat, and the plants grow freely in rich loamy soil, or planted out in the border of a conservatory, for which they are well adapted. Some botanists include *Habrothamnus* in this genus.

CHÆNOSTOMA [Scrophulariaceæ.] The *C. polyantha* is a very pretty plant for the decoration of the flower garden during summer; it is half hardy, requiring to be kept during winter in a greenhouse, or in a dry frame secure against frost, and in summer may be planted out in a warm sunny situation, in light, moderately rich soil. It is readily raised from seeds in spring, and may also be increased by cuttings during summer. The flowers are small but numerous. The other perennial species are to be treated similarly. The annuals must be raised in heat in March, and planted out in June.

CHÆTOGASTRA. [Melastomaceæ.] Warm greenhouse or stove shrubs, with pretty blossoms. *C. strigosa*, a slender twiggly plant, with pretty rose-coloured flowers, may be successfully grown in a warm greenhouse, under the management recommended for MELASTOMA, only, being quite a small plant, it will not require shifting into pots of so large a size. The soil for this should be rather sandy peat.

CHAMÆLAUCIUM. [Myrtaceæ.] Beautiful greenhouse shrub, with fringed flowers, whence the name of Fringe Myrtles has been given to this group. Turfy peat soil and sandy loam in equal parts. Propagated by cuttings in sand under bell-glasses. *C. ciliatum*, flowers white, in May.

CHAMÆNERION. [Lythraceæ.] Hardy ornamental herbaceous perennials, of the easiest culture in the open ground: formerly called *Epilobiums*. They increase with facility by division of the root.

CHAMÆRHODOS. [Rosaceæ.] Hardy herbaceous perennials. Sandy loam; dry, cold situation. Increased by seeds.

CHAMÆROPS. [Palmaceæ.] A genus of palms, of which *C. humilis*, the dwarf Fan Palm, is suitable for small gardens, and may be kept without difficulty by those who have a greenhouse. These plants grow with an upright stem, which gradually lengthens, but in cultivation is many years before it

attains even a yard in height. At the top of the stem is a head of leaves, or fronds, which are shaped and plaited like a fan. It is this singular form of the leaves which renders the plants so remarkable in appearance. The flowers are insignificant. The plant should be grown in turfy loam, peat earth, and rotten dung in equal parts; and being coarse-rooted, it requires considerable scope for its roots; in fact, the plants soon get too many roots for a garden-pot, and require to be planted in tubs. When they get to a comparatively large size they will stand for several years with little attention besides watering and top-dressing. Under cultivation they seldom furnish materials for propagation, and are propagated mostly by imported seeds. There are several other sorts.

CHARLWOODIA. [Liliacæ.] Greenhouse shrubs, with a slender Yucca-like habit. They are raised from the side-shoots thrown out when the plant flowers, or the centre is artificially destroyed, or from suckers. These shoots are to be taken off when a little hardened, and planted singly in moderate-sized pots of sandy soil like cuttings, and kept close and rather dry in a frame until rooted. Established plants are grown in peat and loam, and shifted into larger pots from size to size as they advance. Now by some united with CORDYLINÆ.

CHEILANTHES. [Polypodiaceæ.] Very interesting small ferns, including hardy greenhouse and stove species: of the two former groups but few are in cultivation. Peat and loam. Propagated by division. The principal are *C. hirta*, *C. micromera*, *C. micropteris*, *C. odora*, *C. profusa*, *C. pteroides*, *C. rufescens*, *C. tenuifolia*, and *C. vestita*.

CHEIRANTHUS. WALLFLOWER. [Cruciferæ.] Hardy perennials, of somewhat shrubby habit. *C. Cheiri*, the well-known common Wallflower, has produced various handsome double-flowered varieties, of which the best are the bright yellow, dark brown, and purple. The common single kind is grown abundantly in most flower-borders, and bears its yellow or brownish blossoms freely in April and May, on plants reared from seeds sown in May of the previous year. The seeds should be sown in a bed of light, or rather sandy soil, and the plants pricked out, when large enough, into a nursery-bed, from whence they may be transplanted, with compact

balls of earth about their roots, in the early part of autumn, into the places where they are to flower. When the plants live over to a second year they are larger; but in general the one-year-old plants are preferable. The double varieties are increased by cuttings, planted under a hand-glass in sandy earth about May or June; and are best potted, and protected through the winter in cold frames, though sometimes established plants will survive the winter if exposed. The other species furnish beautiful dwarf plants, suitable for rockwork, or small beds, or the front parts of borders: quite hardy, and increased by cuttings. *C. mutabilis* is a tall, rather straggling shrub, which has changeable purplish single flowers, and requires the protection of a frame or cool greenhouse. *C. Marshallii*, hardy herbaceous perennial; flowers deep orange.

CHELONE. [Scrophulariaceæ.] Beautiful herbaceous perennials, closely allied to Pentstemon, and requiring similar treatment.

CHERRY. See CERASUS.

CHILI PEPPER. See CAPSICUM.

CHILODIA. [Lamiaceæ.] Greenhouse evergreen shrubs. Soil, peat and loam. Increased by cuttings in sand under bell-glasses. *C. scutellarioides*, flowers violet, at various seasons.

CHIMAPHILA. [Pyrolaceæ.] Hardy herbaceous perennials, requiring sandy peat soil, shade, a cool situation, and abundant moisture. Increased by suckers and division. *C. corymbosa*, flowers white; and *C. maculata*, flowers pink.

CHIMONANTHUS. JAPAN ALLSPICE. [Calycanthaceæ.] A deliciously fragrant hardy shrub, of which there are three varieties, one or the other of which ought to be in every garden for the sake of the aroma of the blossoms produced on the leafless branches in the dead of winter: the flowers of all the varieties are of some dull shade of yellow, not showy. They are free-growing shrubs in moderately good soil, and require to be planted by, and trained to, a wall. They must be pruned, so as to preserve annually as much of the young wood as can be trained in at about six inches apart; the rest may be spurred in. As the blossoms are developed in December and the succeeding months, it is desirable to screen them from any nipping frosts that may occur at that season. It is

a shrub in every way suited to train about the windows of a dwelling. Young plants are obtained by means of layering, and they require a little extra protection when young. *C. fragrans*, flowers yellow and brown. *C. macrophylla* is also a favourite.

CHINA-ASTER. See CALLISTEPHUS.

CHINESE HOLLYHOCK. *ALTHEA SINENSIS*. An annual, rarely growing more than three feet high—a Hollyhock in miniature.

CHINESE PINK. See DIANTHUS CHINENSIS.

CHINESE PRIMROSE. See PRIMULA.

CHIONANTHUS. FRINGE TREE. [Oleaceæ.] Fine hardy deciduous small trees or shrubs. Soil, peat earth, in damp situations. Propagated by seeds or layers.

CHIRITA. [Gesneraceæ.] A genus of stove herbaceous plants, but including one species which will succeed in a greenhouse. It should have turfy peat soil, and should be kept close in a moist atmosphere, such as a Wardian case affords. Increased by cuttings of the leaves or division.

CHIRONIA. [Gentianaceæ.] Greenhouse soft-wooded shrubs, of a very ornamental character. They are propagated without difficulty by cuttings planted in sand, and put in a warm frame till rooted, and when established should be grown in roughish sandy soil, composed of three-fourths peat to one-fourth loam, with a considerable admixture of pure sand. The pots must be well drained, and should not be over large. Considerable care is requisite not to over-water, especially in winter. The best are *C. decussata*, rose pink; *C. glutinosa*, rose pink; *C. jasminoides*, purple red; and *C. peduncularis*.

CHLIDANTHUS. [Amaryllidaceæ.] A half-hardy bulbous plant, with fragrant blossoms. Soil, rich light loam. Propagated by offsets. The bulbs require to be kept dry in winter.

CHONEMORPHA. [Apocynaceæ.] Stove climbing shrubs, related to Echites, and requiring similar treatment. *C. grandiflora*, pink; and *C. pubescens*, white, are the best.

CHORETUS. [Amaryllidaceæ.] A beautiful half-hardy bulb, requiring to rest dry during winter, and to enjoy a high

summer temperature. Soil, sandy loam. Propagated by offsets.

CHOROZEMA. [Leguminosæ, § Papilionaceæ.] Beautiful evergreen greenhouse shrubs, requiring care in their cultivation. They are propagated by seed or by cuttings; the latter should be selected from the unblooming shoots, two inches of the top being taken off at a joint, and the lower leaves removed. Fill up a pot to within three-quarters of an inch of the top: thus put two inches of broken potsherds in the bottom as drainage, over this an inch of rough turfy soil, and the rest with a mixture of two parts peat, one of light loam, and one of silver sand; press this firm, and, after levelling it, put three-quarters of an inch of silver sand on the top, and let this be thoroughly wetted, with a little pointed stick insert the cuttings, so that they touch the soil beneath the sand, and fix them quite firm by pressing the sand closely around them with the point of the stick. When they are all planted sprinkle them with water through a very finely-pierced rose of a watering-pot, so as to settle the sand close about them; let them dry for an hour or so in the shade, and then put a bell-glass over, and place the pot in a declining hotbed, or on the tan of a propagating house: the glass must be wiped every morning, and the cuttings just kept moist. They will soon begin to grow, and when rooted they may be potted into the smallest-sized pots, in soil like that used to fill the cutting-pot. They must be gradually exposed to the greenhouse atmosphere. Seeds may be sown in the spring in wide-mouthed pots; and as soon as the plants are large enough they should be potted singly, and treated as cuttings that have struck root. They should, on all occasions, have all the air that can be safely given, even in winter. The best of this genus are *C. flavum*, pale yellow; *C. Henchmanni*, scarlet; *C. ilicifolium*, orange scarlet; *C. Lawrenceanum*, orange red; *C. spectabile*, orange and red; *C. varium*, orange and crimson.

CHRISTMAS ROSE. See **HELLEBORUS NIGER.**

CHRYSANTHEMUM. GOLDEN FLOWER. [Compositæ.] A genus of hardy annuals, and perennials, and greenhouse shrubs of small importance. The annuals, though free-growing plants, have a strong chamomile smell, and are poor

and vulgar in their flowers, though still grown among collections of annuals.

CHRYSANTHEMUM SINENSE. See PYRETHRUM SINENSE.

CHRYSEIS. See ESCHSCHOLTZIA.

CHRYSOCOMA. GOLDY-LOCKS. [Compositæ.] A genus of hardy, herbaceous, and greenhouse evergreen species. The former grow in common soil, and are increased by division; the latter prefer light sandy loam, and are increased by cuttings. They are not very showy.

CHRYSOSTEMMA. [Compositæ.] Hardy herbaceous perennials, with showy flowers. Common garden soil. Increased by division. *C. tripteris*, flowers yellow.

CHYMOCARPUS. See TROPEOLUM.

CIBOTIUM. [Polypodiaceæ.] A very handsome large fern, which may be cultivated in a warm, close greenhouse. Soil, turfy peat. Increased sparingly by division. The only one is *C. Barometz*.

CINERARIA. See SENECIO.

CINQUEFOIL. See POTENTILLA.

CIRCÆA. ENCHANTER'S NIGHTSHADE. [Onagraceæ.] Hardy herbaceous perennials. Common soil. Increased by division.

CIRSIUM. [Compositæ.] Hardy thistle-like biennials and perennials, some of them showy. Common soil. Increased by division; or the biennials by seed, from which plants should be raised annually. Some few of the species, among which is *C. Cassabonæ*, one of the most ornamental species, require protection.

CISTUS. Rock Rose. [Cistaceæ.] The Rock Roses are remarkable for brilliant but evanescent flowers. Nevertheless, these plants, which form compact evergreen, though scarcely hardy shrubs, are very gay subjects for rockwork or sunny spots, on account of the profusion of blossoms they bear during the hot weather of summer. They are increased by cuttings, which should be planted in spring, under hand-glasses, in sandy soil; and the plants, when rooted, ought to be kept in pots, and shifted from time to time until they can be planted where they are to remain. There is an advantage in having the young plants in pots, as the protection which

is essential during the winter months can be more readily given them. The amount of protection they receive in winter must depend on the locality and the severity of the season: they will not bear much frost without injury. They require a dry and well-drained, sandy, loamy soil, and such a situation as is afforded by a piece of exposed rockwork: in such situations, too, on account of their slower growth, they experience a minimum of injury from cold. Two-year-old plants are the handsomest, unless the older ones escape uninjured by frosts

CITRUS. ORANGE. [Aurantiaceæ.] Well-known and favourite greenhouse evergreen shrubs or small trees, cultivated for the sake of their highly fragrant flowers, their richly coloured fruit, and the generally interesting appearance of their habit of growth. These trees all require essentially the same treatment. Pot or tub them in a compost of mellow loam from rotted turves, mixed with half its quantity of decomposed cowdung, and a sixth part of coarse gritty sand. Place them in the open air from the latter part of July till the beginning of September, giving them plenty of water and an occasional syringe over the foliage with a garden engine and fine rose. House them early in September, and take care they do not have too much water during winter. April is the best month to shift their tubs or pots. Large plants in tubs require an annual dressing; part of the surface soil should be taken off, and replaced with fresh compost, and in the spring a little liquid manure made from sheep's dung is beneficial. Cuttings strike freely, but it is better to raise stocks from seed, and graft the fine varieties upon them. The grafting may be done in any fashion, so that the cut part of the stock and the cut part of the scion fit closely, and the barks meet on one side. They may be grafted by inarching, as Camellias are done, or cleft-grafted like the Rose, or spliced like a broken stick. When done by inarching, a strong neat branching bit of the tree may be taken, and with fruit already on it; so that a tree is formed as soon as the stock and the head are united. When they are inarched it is chiefly done for the sake of making very dwarf plants, and having them very soon ready for sale or use, the stock being worked as close down to the surface as possible. The Otaheite Orange

is the best for a small greenhouse, as it blooms very freely, and never gets to a large size. There are numerous varieties of the various kinds of Orange. The following are popular:—*C. aurantium*, *C. decumana*, *C. limetta*, *C. limonum*, *C. Medica*, *C. nobilis*, and *C. vulgaris*.

CLADANTHUS. [Compositæ.] A small genus, containing one pretty hardy annual, *C. Arabicus*, which should be sown in the open border in March, and again in April; or, to have earlier-blooming plants, it may be sown in frames in the former month.

CLARKIA. [Onagraceæ.] Showy free-flowering annuals: the flowers are of a singular form, like a fanciful cross. They are sown in the open border with other annuals in April, or in pots in February, to be ready to turn out in May almost in a flowering state: half a dozen plants in a patch are enough. The common soil of the garden, not very rich, is best for them; for the less luxuriant the foliage grows, the better the plant looks, although it is then smaller. Those sown in pots must be placed in a frame, and thinned so that not more than half a dozen should be left growing in the pot: in May they may be turned out into the borders, without disturbing the balls of earth. The plants bloom from May onwards, according to the time of sowing.

CLAYTONIA. [Portulacææ.] Hardy annuals and tuberous-rooted perennials, not very showy. Common soil. Increased by seeds or by division.

CLEMATIS. VIRGIN'S BOWER. [Ranunculacææ.] A large genus of climbing shrubs, some of which are very ornamental. The hardy kinds are of the simplest culture; they are raised from seeds or layers, and grow freely in any moderately good ground. They are valuable for covering walls, arbours, trellis-work, &c. The half-hardy kinds are proper for the pillars and rafters of greenhouses and cool conservatories. The stove species are of little importance. *C. Sieboldii*, *C. cærulea*, *C. graveolens*, and *C. Hendersonii*, are worthy of being grown on a large pot trellis, and are manageable in that form. The genus contains some hardy perennials, which are managed like other herbaceous perennials. The principal varieties are *C. cærulea*, bluish lilac; *C. flammula*, *C. lanuginosa*, and *C. montana*.

CLEOME. [Capparidaceæ.] This genus contains several curious and rather pretty annuals. They should be raised from seeds in spring, in a frame, with slight warmth, potted off singly, and hardened subsequently, so as to be planted out in May, when they should be strong, vigorous plants. They like a dry, warm situation. One or two species are stove soft-wooded shrubs, and there are some stove annual species, but they are not suitable for general cultivation.

CLERODENDRON. [Verbenaceæ.] Stove shrubs, some of which are very showy. Cuttings, which should be chosen from the unblooming side-shoots, root freely in sandy soil, with bottom heat. The soil for the established plants should be loam, peat, and dung, equal parts. They must be shifted from small to larger pots as they advance, until the plant fills a pot twelve inches diameter, when it will bloom finely. Afterwards the plants must be cut close down annually, disrooted, started in bottom heat, and shifted on as they advance. They are noble-looking bushes, many of them crowned, when in blossom, with a large pyramidal panicle of brilliant scarlet flowers, which last for a long time in beauty, if not then kept too hot and close. *C. fragrans flore-pleno* is desirable on account of the rich fragrance of its blush-coloured heads of blossoms. *C. splendens* and some others are fine evergreen stove climbers: these latter must not be cut down annually like the others. They all require plenty of nourishment while growing.

CLETHRA. [Ericaceæ.] Hardy and greenhouse shrubs and trees, of which the *C. arborea*, a greenhouse species, with bright rich-looking foliage, and spikes of blooms like the Lily of the Valley, is the only important species. There is hardly a prettier greenhouse tree than this, and it wants no more than to be just kept from the frost. The proper soil is peat two-thirds, light loam one-third, with sand added. As soon as it has attained a moderate size, and filled a six-inch pot, it will begin to flower. It must, however, be recollected that, if kept growing by constant shifting, it will not bloom abundantly until it gets to a much larger size; but if the pot is pretty full of root it will flower abundantly. Cuttings strike freely in sandy soil, put in a little warmth, and when struck merely require potting from one size to another till of a

flowering size. The hardy ones will grow anywhere, and only require planting in peat soil.

CLIANTHUS. GLORY PEA. [Leguminosæ, § Papilionaceæ.] Free-growing evergreen greenhouse shrubs. Propagated by cuttings in sand on bottom heat. The cuttings, when rooted, should be kept in small pots until well established; afterwards shift moderately until the plants are as large as can be accommodated, when it is better to renew them. The soil should be loam and peat in equal parts, with one-sixth sand. *C. puniceus* is of rather straggling habit, but sufficiently sturdy to train into a bush if kept constantly topped while young. It can be grown in a pot, on a pillar trellis as large as the pot all the way up, but it is far better trained against a wall.

CLINTONIA. [Lobeliaceæ.] Very pretty hardy annuals. They are slender-growing dwarf plants, hanging over the edges of the pots, if grown in pots, but forming very beautiful objects on the ground, being so much covered with blooms as to hide the stems. Sow the seeds in pots in March put them in a frame—if with a little warmth so much the better; set them in feeders of water until germinated, then thin the plants so as to give them room, and keep them growing in frames till May, when those for the borders may be turned out: they will very soon flower, and have a very pretty appearance. To provide a succession, some should be sown in the borders about April; these will flower when those of the first sowing leave off. Many annuals may thus be managed, so as to keep up a succession of bloom during several months, by sowing at different seasons. *C. pulchella*, the best of the two species, is a much more interesting object for pot culture than nine-tenths of the plants grown in pots. Peaty soil, or a light mixture of leaf-mould, loam, and sand, is most proper for them.

CLIVIA. [Amaryllidaceæ.] A handsome warm greenhouse perennial, with thick fleshy roots. Propagated by division. Soil, rich sandy loam. *C. nobilis*, flowers red and yellow.

CLOVER. See TRIFOLIUM.

CLUB-MOSS. See LYCOPodium.

COBÆA. [Polemoniaceæ.] Greenhouse or half hardy

rapid-growing climbers, covering a large space during the summer season with their herbaceous stems, which, in a greenhouse or conservatory, retain their foliage, and continue to blossom through the winter. They are very useful as well as ornamental out of doors during the summer season, but in such situations are killed by frosts. When grown in a greenhouse they generally ripen plenty of seeds, by which they are best propagated, though they may be increased by cuttings. They require a rich loamy soil. *C. scandens* is chiefly grown.

COBURGHIA. [Amaryllidaceæ.] Fine greenhouse bulbs, agreeing in treatment with *Phycella* and the allied genera; that is, they require a rich loamy soil, and a warm sunny situation during summer, and to be kept dry and from frost in winter. Increased by division.

COCKSCOMB. See *CELOSIA*.

CŒLESTINA. [Compositæ.] *C. ageratoides*, formerly known as *Ageratum cælestinum*, is a half-hardy sub-shrubby plant, useful for the decoration of the flower garden in summer. The plant should be raised from cuttings in July or August, potted into single pots, and kept through the winter in a dryish greenhouse, where abundance of air is admitted in all mild weather, and frost is by any means excluded: they may be kept in small pots, on shelves near the glass. In February they should be shifted into pots a size larger, and may be removed to shallow frames as soon as these are a safe protection against frost. In such frames they get more perfectly exposed to light and air, and are thus the better prepared for planting out. In May the plants must be thoroughly hardened to bear the open air without protection, and towards the end of that month they may be planted out.

COLCHICUM. MEADOW SAFFRON. [Melanthaceæ.] Hardy bulbs, pushing up their *Crocus*-like flowers just above ground in autumn, whence they are sometimes called autumn *Crocuses*: the leaves are not produced with the flowers, but appear in spring. They are pretty either for patches in the mixed flower-border, or as an edging. They increase by offsets or by seeds, the latter sown as soon as ripe, and allowed two seasons' growth in the seed-bed, and then the strongest planted out for blooming. Offsets should be planted

in a nursery-bed, to acquire blooming strength. The bulbs do not require to be taken out of the ground, except for the purpose of replanting; and this should be done in June or July, while they are quite dormant. In planting the bulbs may be set about three inches under the surface. They grow best in light loam. They are desirable from the freshness and spring-like nature of their growth, when vegetation generally is beginning to languish. For ornamental purposes, preference should be given to the double-flowered variety.

COLEONEMA. [Rutaceæ.] Elegant greenhouse evergreen shrubs, formerly associated with *Diosma*, and requiring the same kind of treatment. Soil, sandy peat. Propagated by cuttings in sand under a bell-glass. *C. rubra* and *C. gracilis* are the best.

COLLANIA. [Amaryllidaceæ.] Beautiful fleshy-rooted greenhouse herbaceous perennial, related to *Alströmeria*. Soil, peat and loam. Increased by division.

COLLINSIA. [Scrophulariaceæ.] Pretty dwarf annuals. *C. bicolor*, a very showy plant in clumps, where it is to be conspicuous in three or four parts of a figure. The culture is simple; in ordinary cases the seeds may be sown in patches in the borders in March, April, and May: eight or ten plants will be sufficient to form a patch. When they are to form a mass of flowers, as in the parts of a geometrical garden, they ought to be not more than three inches apart. For this it is best to sow thinly where they are to flower, and when they are up, thin the plants, so that they may be from two to three inches from each other: this gives the appearance of a complete mass of flowers when the spikes of bloom rise. Sowing in pots should be begun in March, and eight or ten plants are enough for a pot. These should be placed in a greenhouse, and as they grow, if any two should be too close together, remove one. Where patches of this flower are to be at certain distances round borders, the balls may be turned out from the pots as soon as the weather will be secure. If this cannot be done they must be sown on a reserve bed, and transplanted when large enough, or else raised and kept in pots till they are wanted; for either of which purposed they should be sown in March on a very gentle hotbed, and

protected slightly during April, and if needful the early part of May. *C. grandiflora* is a dwarfish variety, equally pretty, though different from *bicolor*. It grows six inches high, spreading on the ground instead of growing erect; flowers rose purple and bright lilac in June. There are several other pretty kinds, but differing only in their colours; and every year will add to the number of varieties, which will in time perhaps become, like Larkspurs, most interesting in mixtures.

COLLOMIA. [Polemoniaceæ.] Hardy annuals, allied to *Gilia*, of very free growth. Common garden soil. The first sowing should be in March, and the next in May, in the open border, and the plants must be thinned while quite small, that they may have room to grow strong and bushy.

COLUTEA. BLADDER SENNA. [Leguminosæ, § Papilionaceæ.] Deciduous shrubs. Common soil. Increased by seeds or layers.

COMAROSTAPHYLIS. GRITBERRY. [Ericaceæ.] Evergreen shrubs, bearing succulent edible fruits. Peat and loam soil. Increased by seeds, by cuttings in autumn, or by grafting on *Arbutus*.

COMBRETUM. [Combretaceæ.] Beautiful climbing stove shrubs. They grow best in loam and peat, and may be flowered in pots on a trellis, or planted out in the stove, to climb up the walls or along the roof. The cuttings are rooted in sand, and potted off into small pots, which are allowed to be quite filled with roots before they are changed, so as to give the plant a kind of check before they shift; for this induces it to flower when of smaller size, and therefore while it is more manageable in a pot. They are rambling plants if allowed to grow rapidly under excitement. By this caution we may flower the *Combretums* on a trellis four feet high, whereas they may be made to cover a house. *C. Pinceanum*, flowers purple red; and *C. purpureum*, a rich crimson.

COMMELINA. [Commelinææ.] Perennials, including tuberous-rooted and evergreen trailing, as well as stove, greenhouse, and hardy species. The tuberous-rooted sorts are the most useful for the garden; they grow well in rich peat soil, but do not refuse to flourish in good light garden soil. The tubers should be taken up in winter, and preserved in a pot, to be forwarded in heat in spring, and planted out about

May. They increase freely from seeds, as well as division. The hardy sorts may be sown in the borders, in March, in damp peaty soil. The evergreen trailing kinds increase by cuttings, and for the most part require stove heat.

CONANTHERA. [Liliacæ.] Pretty half-hardy bulbs. Dryish, sandy, loamy soil. Propagated by offsets.

CONOSPERMUM. [Proteacæ.] Greenhouse evergreen shrubs. Sandy peat soil. Increased by cuttings in sand under bell-glasses.

CONOTHAMNUS. [Myrtacæ.] Greenhouse evergreen shrubs. Soil, peat and loam. Increased by cuttings in sand under bell-glasses. *C. trinervis*, flowers red, in June.

CONVALLARIA. LILY OF THE VALLEY. [Liliacæ.] This universally admired plant is a dwarf herbaceous perennial, and its spikes of drooping white, deliciously fragrant flowers, and broad green leaves, form one of the loveliest of nature's contrasts in colouring—rich green and pure white. There are varieties, in one of which the flowers are pinkish, and in the other double white; but the simple form is the most attractive. They grow in common garden soil, and flourish in shady places. The plants are increased by dividing the roots. Planted in pots they are beautiful subjects for forcing into early bloom.

CONVOLVULUS. BINDWEED. [Convolvulacæ.] Ornamental plants, with trumpet-shaped flowers, which are great favourites in gardens. The best known are known as the *Convolvulus major* and the *Convolvulus minor* of gardens, the former of which belongs to another family, called PHARBITIS, which see; and the hardy annual species, of which *C. tricolor*, and its white and dark blue varieties are the best, should be sown in pots in March for early bloom, and again in April and May, in the open borders, for a succession. *C. tricolor* is a fine border plant, and where the beds are large it is a good flower for masses; for, though a little straggling, it is not more so than can be controlled. *C. scammonia*, among the hardy perennial kinds, is a very pretty twiner, and like the rest is best increased by seeds, and need only be planted in a dry, well-drained situation, in good lightish garden soil. The half-hardy kinds chiefly need protection at the root against wet during winter. There are

some stove and greenhouse shrubby and climbing species which require an open compost of turfy peat and loam, and are increased by cuttings, as may also the other perennial kinds. The annuals are in all cases perpetuated by seeds.

COOPERIA. **EVENING STAR.** [Amaryllidaceæ.] Pretty half-hardy bulbs, with fragrant flowers, opening in the evening. Deep sandy loam soil, in a sheltered situation. Increased by offsets or by seeds, which latter should be sown as soon as ripe.

CORAL TREE. See **ERYTHRINA.**

CORBULARIA. **HOOP-PETTICOAT NARCISSUS.** [Amaryllidaceæ.] Beautiful hardy bulbs. Sandy, loamy soil. Increased by offsets.

CORDYLINE. [Liliaceæ.] Fine greenhouse palm-like shrubs, of easy culture. Soil, loam and peat. Increased by suckers or cuttings, obtained by destroying the heart of the plant.

COREOPSIS. [Compositæ.] A genus now chiefly confined to a small group of showy perennials, but formerly including some of the most popular annuals, as *C. tinctoria* and *C. Drummondii*. These perennials are propagated by dividing the old roots, which may be done in autumn or spring. The plants grow well in any moderately good garden soil, and rank among the best of the larger perennials.

CORETHROSTYLIS. [Byttneriaceæ.] Greenhouse evergreen shrubs. Sandy peat soil. Propagated by cuttings in sand under bell-glasses.

CORIARIA. [Coriariaceæ.] Hardy deciduous shrubs. Common soil. Increased by suckers or cuttings.

CORN BOTTLES. See **CENTAUREA CYANUS.**

CORN FLAG. See **GLADIOLUS.**

CORNUS. [Cornaceæ.] Hardy deciduous trees and shrubs, suitable for shrubberies. Common soil. Increased by layers or seeds. There are two small herbaceous species, which are pretty plants for boggy situations, or pot culture in peat soil.

CORONILLA. [Leguminosæ, § Papilionaceæ.] Shrubs and perennial herbs, of which some are showy border flowers of easy culture. Propagated by division, and growing in common garden soil. The greenhouse shrubby kinds flower

throughout the winter and early spring months. They require a compost of two-thirds light loam, and one-third turfy peat. They strike freely from cuttings in sandy soil under a common hand-glass in the spring, selecting for cuttings the shoots which have not any bloom. When they have struck root pot them in three-inch pots with good drainage, and place them in a shallow frame where they may be near the glass; pinch out the tops to make them grow bushy, and as they fill the small pots with roots change them to five-inch pots, and return them to the frame. They must have plenty of air during the spring months, and on mild days may be entirely uncovered; and throughout the summer they should be constantly exposed, except during heavy rains, or when the sun is very powerful; for they need constant watchfulness as to moisture, and if allowed to dry will get naked at the bottom, which will spoil their appearance altogether. Change the pots for larger sizes as required, and about the first week in September put them into the greenhouse, where they will soon commence flowering, and may continue until the end of May, when they should be put out in the open air, in a sheltered situation, among other greenhouse plants. They seed occasionally, and the seeds may be sown in the same kind of compost, in wide-mouthed pots or seed-pans, very thinly, and when large enough may be pricked out into small pots, three or four in a pot, till they are as large as struck cuttings, when they may be treated exactly like them, but cuttings are preferable. *C. glauca* has sported into a variegated-leaved kind.

CORREA. [Rutaceæ.] Greenhouse evergreen shrubs, valuable for blooming in winter and very early spring. They require much the treatment of *Boronia*. Young plants are raised from cuttings, or by inarching on the common sort, *C. alba*, which strikes freely from cuttings; and where the propagation of the better sorts of *Correas* is an object, it is usual to keep a supply of this common kind in small pots for this purpose. The advantage of inarching on this particular species is, that it is a freer-growing plant at the root than most of the other sorts. The young plants intended for stocks should be encouraged to make a single straight clean shoot, which is inarched as near the soil as convenient. When

intended to be grown as objects of superior cultivation, on the other hand, they require to be frequently topped to produce a bushy growth; and this requires very close attention, for they grow rapidly. The proper soil is three parts peat earth to one of sandy loam, with more or less sand added, the other materials being turfy. The pots must be well drained, and the plants watered with care at all seasons. Besides several handsome species, the varieties of *Correa* raised from seeds are now very numerous, and some of them far excel the original kinds. *C. alba*, *C. pulchella*, *C. speciosa*, *C. virens*; but the garden varieties are endless.

CORTUSA. BEAR'S-EAR SANICLE. [Primulaceæ.] A pretty dwarf herbaceous perennial, suitable to be grown on rockwork, or in pots among alpine plants. Loam and peat. Propagated by division.

CORYDALIS. [Fumariaceæ.] Pretty hardy plants, of easy culture in common soil. The annuals and biennials, which are the least important, may be sown in the borders in April and June. The perennials are increased by division.

CORYPHA. FAN PALM. [Palmaceæ.] Beautiful palms. Most of this family will succeed in a warm greenhouse. Rich sandy loam. Propagated by imported seeds. The chief one is *C. australis*.

COSMANTHUS. [Hydrophyllaceæ.] Pretty hardy annuals. Rich garden soil. Increased by seeds.

COSMEA. [Compositæ.] Pretty half-hardy annuals and perennials. Rich garden soil. The annuals increased by seeds, which should be sown in gentle heat in spring, and the young plants turned out in May; the perennials by root division. Also called *Cosmos*.

COSMELIA. [Epacridaceæ.] Greenhouse evergreen shrub. Sandy peat. Propagated by cuttings in sand under a bell-glass. The only one we grow is *C. rubra*, flowers red, in May.

COTONEASTER. [Pomaceæ.] Hardy trees and shrubs, of an ornamental character. Common soil. Increased by layers or by seeds. The deciduous and tree-like sub-evergreen species are less desirable than the prostrate trailing evergreen shrubs with neat box-like foliage. There are many varieties.

COTTON GRASS. See **ERIOPHORUM**.

COTTON TREE. See **GOSSYPIUM**.

COTYLEDON. [Crassulaceæ.] Greenhouse succulent-leaved evergreen shrubs. Sandy loam, with one-eighth old mortar. Propagated by cuttings. A large genus, all the species curious.

COWANIA. [Rosaceæ.] Greenhouse evergreen shrub. Soil, sandy peat and loam. Increased by cuttings in sand under a bell-glass. *C. plicata*, flowers red, in June.

COW PARSNIP. See **HERACLEUM**.

CRANE'S-BILL. See **GERANIUM**.

CRANIOLARIA. [Pedaliaceæ.] Greenhouse annuals, requiring the culture of *Martynia*, from which this has been separated.

CRASSULA. [Crassulaceæ.] Succulent greenhouse shrubs. The most ornamental of the old *Crassulas* have been removed, and are now called *Kalosanthes*.

CRATÆGUS. **HAWTHORN.** [Pomaceæ.] The most ornamental genus of the smaller trees. It is among an extensive family: the majority grow into trees of from twelve to twenty feet high, with considerable diversity of habit. The flowers are for the most part white in bunches, so familiar in the common "*May*," or Hawthorn; but there are some with pink blossoms. The trees are, however, no less valuable on account of their flowers than their fruit, which is very ornamental in the autumn, the flowers being developed in the spring, or between April and June. The Thorns all grow freely in good garden soil, preferring that of a loamy texture. They are, in ordinary cases, better known as small standards or trees than as bushes. It is usual to graft all the kinds upon stocks of the common Hawthorn; an upright leading shoot is then trained up to a sufficient height for the stem, which may be four or six feet high, when they are pruned to form the head. The common kind for stocks, or for the purpose of forming hedges—for which it is one of the best of deciduous subjects—is raised from the seeds or haws, sown broadcast in beds, and transplanted when a year old into nursery-beds. Fences are best planted with two-year-old plants. The stocks for grafting should be four years old, and if they are not placed where the trees are to remain, they

should have been transplanted annually previously to grafting them.

The species are all desirable. *C. pyracantha* is an ever-green trailing species, with bunches of fiery berries in winter ; it is one of the best of plants for training against a wall or building.

CRAWFORDIA. [Gentianaceæ.] Beautiful twining half-hardy annuals or perennials (?). Peat and loam. Cuttings or division.

CRINUM. [Amaryllidaceæ.] Beautiful bulbous plants, of which the majority are among the finest stove plants. Strong rich loamy soil, with coarse sand. Increased by offsets. *C. longiflorum* should be planted eight or ten inches deep in a moist situation. *C. amabile* and *C. umbellatum* are fine.

CRISTARIA. [Malvaceæ.] A neat hardy herbaceous perennial. Peat soil. Increased by division or by seed. *C. coccinea*, hardy perennial ; flowers scarlet, in August.

CROCUS. [Iridaceæ.] Beautiful dwarf hardy bulbs, with grassy leaves and showy flowers. The Crocus is popularly known as a spring flower, peeping up almost from amongst the snow. The spring Crocuses come into bloom some time in February, and continue more or less in bloom until the beginning of April, this succession of bloom being obtained by earlier and later planting, and by placing them in different situations and aspects. No flowers are more easily cultivated ; they grow in any ordinary garden soil, and multiply rapidly by offsets. The bulbs, or corms, should be planted in October or November, about two inches below the surface, in rows or patches. They are suitable for edgings to flower-borders, or they may form small beds by themselves ; in either case the bulbs should not be inserted singly, but are far more effective if put in groups of six, twelve, or even more, the groups being proportionately distant. There is another race of Crocuses, the autumn bloomers, comprising some very splendid species, which bloom in the end of October and through November, and are equally useful as ornaments with the spring Crocuses, in consequence of blooming when other flowers are nearly over : many of these, however, are very scarce. They should be planted in June and July, and in

other respects require precisely the same treatment as the others.

CROSSWORT. See CRUCIANELLA.

CROWEA. [Rutacæ.] Greenhouse evergreen shrubs, forming elegant and striking additions to a select collection. When grown slowly they form fine pyramidal branching plants, and are in blooming time studded all over with bright pink stars. When grown in heat, or too much excited by the soil, the stems are more elongated, less clothed with leaves, and the whole plant more naked. Cuttings strike with a little bottom heat in sand, under a bell-glass, and when they have well taken root are potted into three-inch pots; when taken off, the cuttings should be only two inches long, and one inch of that should be inserted in the sand. These fresh-potted plants must be kept in a close pit until established, and then placed close to the front of the greenhouse, where they may have plenty of air and light. As soon as the pots are filled with roots change them for others a size larger, still keeping them near the glass in the greenhouse, and shifting from time to time from one pot to another. The plants will make side-shoots, and assume a pyramidal shape particularly graceful and handsome. If they are required short and bushy the tops should be taken off soon after the struck cuttings are potted off, as the side shoots push earlier and stronger for it; but then the stopping system having been begun must be continued, so as to keep the plant in form, and to check any branch that may grow too vigorously. The most elegant form, however, is that of the natural growth of the plant, and if not grown too rapidly the bloom will come abundantly all over the plant alike. The soil must be sandy turfy peat. *C. saligna*, flowers rose, in July. *C. stricta*.

CROWFOOT. See RANUNCULUS.

CRUCIANELLA. CROSSWORT. [Galiacæ.] Hardy perennials and annuals, with two or three requiring stove and greenhouse temperature. The most desirable is *C. stylosa*, a trailing plant, forming a pretty subject for rockwork. It is propagated rapidly either by cuttings of the young shoots, or by dividing the plant, and grows readily in common garden soil.

CRYPTOMERIA. JAPAN CEDAR. [Pinaceæ.] A very ornamental evergreen tree, thriving best in pure and rather sandy loam, and in elevated situations. Seeds have been largely imported, from which the many thousands of young plants now dispersed through the country have been produced. It is also propagated by cuttings and grafting; but seeds make far better plants, and these have been already ripened in England. *C. Japonica* is a fine evergreen, and a dwarf-growing variety has been imported from the north of China.

CUMMINGIA. [Liliaceæ.] Beautiful half-hardy bulbs, requiring a light rich mixture of loam, peat, leaf-mould, and sand, and a sheltered situation, such as a frame, or the foot of a wall with a south or west aspect. Increased by offsets.

CUNILA. [Lamiaceæ.] Hardy herbaceous perennials. Peat and loam. Propagated by division. *C. coccinea*, flowers scarlet. *C. Mariana*, flowers red.

CUPHEA. [Lythraceæ.] Pretty shrubby or herbaceous perennials and procumbent annuals, comprising both tender and hardy species. The hardy annual kinds should be sown along with the annuals in March on a slight hotbed, or in frames, for the earliest bloom, and again in April and May in the open borders: they prefer a rich light soil. The greenhouse and tender species grow in a mixture of two parts leaf-mould to one of loam, with a sixth of sand added, and are increased by cuttings in sand in a brisk hotbed during the spring or summer.

CUPRESSUS. CYPRESS. [Pinaceæ.] Handsome hardy evergreen shrub-like trees, mostly of pyramidal growth. They are mostly large trees when full grown, but being erect-growing, may be kept for many years in a moderate space. Good loamy soil is best for them, and they are best increased by seeds, but sometimes by cuttings and by grafting. The chief ornamental evergreens are *C. sempervirens* (common evergreen); *C. torulosa* (Bhotan Cypress); *C. thurifera* (frankincense-bearing); *C. funebris* (funereal); *C. macrocarpa* (large-fruited); *C. majestica*, and *C. aromatica*.

CURRANT. See RIBES.

CYANANTHUS. [Polemoniaceæ.] Pretty hardy herbaceous plants, requiring sandy peat soil. Increased by

cuttings. *C. lobatus* requires the same treatment as a pine plants; flowers blue, in August.

CYANELLA. [Liliaceæ.] Pretty little greenhouse or half-hardy bulbous perennials. Soil, three parts of turfy peat to one of sandy loam, with one-sixth sand. Increased by offsets. They succeed on a warm dry border if planted deep—six inches at least beneath the surface.

CYATHEA. [Polypodiaceæ.] A genus of hothouse tree ferns, including some greenhouse species. Soil, peat and loam. Increased from the spores, or from occasional offshoots; but young plants are a long time acquiring a size which displays their beauty, and it is much preferable, now that the means of communication are so facile, to import good-sized trunks from their native habitats. The best are *C. dealbata* and *C. medullaris*.

CYCAS. [Cycadaceæ.] A genus of palm-like plants, nearly allied to *Zamia*, requiring the stove temperature. The foliage of the species of *Cycas* is very elegantly feathered, and the plants are very desirable in a stove collection: they flower but seldom, the beauty of the plants resting in their evergreen foliage, or fronds. Soil, rich sandy loam. Increased slowly from suckers.

CYCLAMEN. SOWBREAD. [Primulaceæ.] A beautiful genus of dwarf, tuberous, hardy, and half-hardy perennials. From their tuberous roots proceeds a crown of handsome leaves, above which rise the flowers almost of the form of a shuttlecock, the petals reflexing completely, and pointing upwards. The bloom is profuse, and in some of the kinds highly scented. The greenhouse sorts should be grown in a light position near the glass. The tubers require but one annual potting, which should be done in autumn, when they commence growing, and continue through the winter, so as to flower very early in the spring, except in the case of the summer and autumn-blooming species, which should be potted when at rest. The plants seed freely, and are best raised from seed, because they do often admit of division, and division generally produces unsound plants very liable to rot. Sow the seed as soon as ripe in pans, in soil composed of loam and peat in equal quantities, with a sixth part of sand; sow thinly, so that they may not come up too close to each other;

place the pan in the greenhouse near the glass, water occasionally, and when they come up keep them clear of weeds. A warm frame is the best place for them while growing. When they have made their full growth they will have formed little tubers, which, at the decay of the leaf, should be taken up and put into five-inch pots, four or six in a pot, now using a soil of equal parts mellow loam, turfy peat, and good rotten dung, with sand as before. They must again be placed near the glass, and after one more season's growth, and the decay of the leaf, they may be taken up, and planted one only in a pot four inches in diameter. The top of the tuber should be placed level with the surface of the soil. They should flower this third season, and from that time they need only to be removed into larger pots as they increase in size, and will flower more abundantly every year. The pots may be about twice the diameter of the tuber. After the bloom is over, and the leaves matured, they should be suffered to rest by being kept rather dry; but it is not advisable to allow them to get quite dry, as is sometimes done. The half-hardy sorts require exactly similar treatment, only a cold frame suits them best, and the hardy kinds grow in shady parts of the garden in peaty soil, but are well deserving of culture with the half-hardy sorts in a frame.

CYCLOBOTHRÆ. [Liliaceæ.] A small genus of hardy or half-hardy bulbs. Soil, sandy loam and leaf-mould. Increased readily by offsets. They require protection in winter either by mulching or removing to a frame.

CYCLOGYNE. [Leguminosæ, § Papilionaceæ.] Greenhouse evergreen sub-shrub. Soil, light loam and leaf-mould. Increased by cuttings.

CYDONIA. QUINCE. [Pomaceæ.] A genus of trees and shrubs, including *C. Japonica*, once known as *Pyrus Japonica*, which is one of the most brilliant of deciduous flowering shrubs, blooming in the depth of winter and throughout the greater part of the year. The large scarlet flowers grow in clusters on the branches, and are very conspicuous in winter when the leaves are fallen. It is a free-growing plant in common garden soil, attains five or six feet in height, or more if trained against a wall, and is increased either by cuttings, layers, or suckers. It forms a beautiful lawn or shrubbery

bush ; is equally desirable trained over the surface of a garden wall or building ; forms a very ornamental hedge ; or, if trained up or "worked" on a clean stem, makes a very conspicuous small standard tree. The plant is perfectly hardy, which, combined with its easy culture, recommends it to general favour. There are varieties with cream-coloured and semi-double red flowers, but they are far inferior to the common kind.

CYNANCHUM. [Asclepiadacæ.] Hardy herbaceous perennials for the most part : they are not showy. Common soil. Propagated by division.

CYNARA. ARTICHOKE. [Compositæ.] Striking plants, with ornamental foliage, for large borders and the fronts of shrubberies. Common soil. Increased by division.

CYNOGLOSSUM. HOUND'S TONGUE. [Boraginacæ.] A rather large genus of hardy plants, including perennials, biennials, and annuals. Common soil. Increased by division or by seeds. They are rather coarse-habited plants, and admissible only in large mixed borders.

CYPELLA. [Iridacæ.] A genus of pretty little half-hardy bulbous plants, which may be grown in a frame, with protection against frost in winter. They should have a light compost of loam, peat, and leaf-mould in equal proportions, with sand added, and are propagated by offsets. *C. plumbea* is sometimes called *Phalocallis plumbea*.

CYPRESS. See **CUPRESSUS**.

CYPRIPEDIUM. LADY'S SLIPPER. [Orchidacæ.] Beautiful herbaceous perennials, comprising about a dozen hardy and some half-dozen stove species. The latter are easily cultivated in a moist heated atmosphere, such as the orchideous family generally require, and may be potted in rough turfy peat. They must not be over-watered at the root, nor should cold water be poured about their roots or hearts at any time. They increase by division. The hardy ones are more difficult to cultivate, and can only be well managed in a cold shady frame, kept almost constantly closed during summer, in order to keep up a cool, calm, and moist atmosphere. A bed of peat earth should be made up, and the roots planted out in it. This bed should be covered on the surface with moss, to keep it regularly and constantly moist. They may be kept in pots

of peat soil, and set into a similar frame. Whether grown in pots or planted out, they do not at all like to be disturbed, and should therefore be replanted or repotted as seldom as possible. It is a remarkable as well as beautiful family, and is worth any trouble to secure its successful cultivation. All pretty.

CYRTANTHUS. [Amaryllidaceæ.] Handsome bulbous plants. Soil, strong, rich, but open loam. Propagated by offsets. The evergreen species require to be kept growing in a warm greenhouse in winter; the rest dry and at rest.

CYSTOMIUM. [Polypodiaceæ.] Greenhouse evergreen fern. Soil, turfy peat and loam. Increased by division.

CYSTOPTERIS. BLADDER FERN. [Polypodiaceæ.] A very pretty genus of small-growing ferns, with delicate annual fronds, of from three to twelve inches in height. They grow well on rockwork, or in pots among turfy soil, intermixed with lumps of brick or freestone, and well drained. They are multiplied by division of the plants. *C. alpinum*, *C. bulbiferum*, *C. fragile*, and *C. montanum* are the principal.

CYTISUS. [Leguminosæ, § Papilionaceæ.] Elegant and for the most part showy shrubs and small trees. *C. laburnum* and *C. alpinus* are well-known free-flowering trees; and though the most familiar and common, are the most beautiful of the whole family. They may be raised from seeds, which need only be sown on the common open ground and raked in, where they may be thinned to proper distances, two or three inches apart, and remain the first season; the next they may be planted out in rows, a foot from plant to plant, and two feet from row to row, as all these trees are wanted as standards, whether for their own sakes or for stocks on which to graft or bud other varieties, therefore the side-shoots but the top two or three should be rubbed off while merely buds. When they are tall enough their heads may be allowed to grow and bloom, because those with the largest and handsomest racemes of flowers may be saved for Laburnums, and the others may be worked with the different species of *Cytisus*, some of which are white, others yellow, and many are of different forms and habits, but all make good standards. Some of them have small racemes of flowers, others bloom

all the way along the branches ; some are pendulous, others shrubby and upright, but all very pretty, and worth growing in collections among ornamental shrubs. Most of the hardy kinds may be grown as dwarf shrubs in any common soil, and are readily increased either by seeds or by layers. The greenhouse species are handsome shrubs, growing freely in peat and loam, and increased by seeds, by grafting, or by cuttings. ORNAMENTAL TREES.—*C. laburnum* (common Laburnum). *C. alpinus* (Scotch Laburnum). ORNAMENTAL SHRUBS.—*C. albus* (Portugal Broom); *C. nigricans*; *C. sessifolius*; *C. patens*; *C. scoparius* and its varieties; *C. nanus*; *C. multiflorus*; *C. spinosus*; *C. filipes*; flowers white, in March. These shrubs should be increased by layers in the autumn, and be taken off the following season, and bedded out a foot apart, and cut down to three or four eyes, to make them throw out lateral branches and form bushy plants.

CZACKIA. BRUNO'S LILY. [Liliaceæ.] A pretty herbaceous perennial. It is increased by division, grows in common garden soil, and is quite hardy.

DABŒCIA. ST. DABŒC'S HEATH. [Ericaceæ.] A small hardy flowering shrub, requiring peat soil, and associating well with the Andromedas, the smaller Rhododendrons, Epigæa, and hardy heaths. Propagated by layering, and require a moist peaty soil. Along with some of the dwarf Heaths they are suitable for planting as edgings to beds of American shrubs. *D. polifolia*, flowers purple or white, in June.

DACRYDIUM. [Taxaceæ.] Greenhouse evergreen shrubs, of ornamental habit. Soil, sandy loam. Increased by cuttings in sand under bell-glasses, or by grafting. ORNAMENTAL EVERGREEN SHRUBS.—*D. cupressinum*, *D. elatum*, *D. excelsum*, *D. Franklandii*, *D. Mai*, *D. taxifolium*.

DACTYLICAPNOS. [Fumariaceæ.] Half-hardy climbing perennial. Light rich loam. Propagated by seeds or cuttings.

DAGGER FLOWER. See MACHÆRANTHERA.

DAHLIA. [Compositæ.] The florists' varieties of this brilliant autumnal flower require good rich soil, and a moist open situation. For ordinary gardens, when no great increase is required, the tubers may be placed in any warm situation

—a hotbed for instance, or a warm kitchen or other apartment—about the month of March, and in a few days the eyes, or incipient shoot-buds, will appear ; then separate the tubers into as many pieces as are wanted, with at least a sound eye and tuber to each piece. These pieces may be potted and placed in the greenhouse, or dwelling-house, or a common frame, or any place from which frost can be excluded, and they will begin growing. In potting the tubers may be freely cut to lessen their size, for the convenience of using moderate-sized pots. Those who want to increase their stock considerably may pot the whole tubers, and put them in a hotbed, and as fast as any shoots come, and are grown two inches long, cut them off at the base, pot them singly in the smallest-sized pots, and put them in the hotbed to strike. Plants reared in either of these ways may be put in the open ground about the middle of May, in the places where they are to flower. They are very subject to attack from earwigs. To draw these together invert small flower-pots, half filled with dry moss, on the stakes to which the plants are fastened : by examining these pots frequently, and shaking the entrapped earwigs into scalding water, incredible numbers will be destroyed. The plants should be six feet apart, and they must be tied up as they grow, or the wind will break them down. Seeds may be sown in March in a hotbed, and the young plants potted and kept growing till the middle of May ; they may then be planted in rows two feet apart in the row, and three from row to row. The florists' varieties have been obtained, by years of crossing and seed-saving, from *D. variabilis*, and are now almost endless in variety of colour, and vary in height from three to six feet. In the pronunciation of the name *Dahlia*, the sound *ah*, and not *ay*, should be used—Dähl-ě-a. The other kinds of Dahlias are small tuberous rooted perennials, requiring to be protected in winter, and planted out in summer in good garden soil.

DAISY. See BELLIS.

DAMMARA. [Pinacæ.] Greenhouse evergreen shrubs, or trees in their native habitats. Soil, sandy loam. Increased by cuttings or by grafting.

DAMPIERA. [Gordeniacæ.] Greenhouse herbaceous perennials. Soil, peat and loam. Increased by division

DAPHNE. [Thymelacææ.] Interesting hardy and greenhouse shrubs, comprising some of the prettiest and most fragrant ornaments of the dressed ground and shrubbery. Soil, equal parts sandy loam and peat. The commoner and hardy kinds are raised from seeds or layers, and the better and tender kinds are usually grafted or inarched, stocks of *D. Pontica* and *D. laureola* being used. The greenhouse kinds require plenty of pot room, and may be associated with Camellias as regards the details of cultivation: they are highly desirable on account of their rich perfume, with which the whole atmosphere of the houses in which they are placed is charged. A close, moderately warm pit is preferable for the grafting process. Seeds are two years in vegetating. *D. cneorum*, pink; *D. collina*, rosy lilac; *D. Fortuni*, pale purple; *D. Indica*, white, *D. Japonica*, pink; *D. Mezevium*, pink or white, *D. odora*, pinkish or red, are the principal.

DATE PALM. See PHŒNIX.

DATURA. [Solanacææ.] The shrubby species of this genus are also known as *Brugmansias*. They are greenhouse shrubs, all worthy of general cultivation, and of easy culture. They strike from cuttings or eyes very freely, and grow fast. To raise them from eyes, get a wide-mouthed pot just before the season for starting the plants, which must be pruned close in; cut the pieces taken off into eyes—that is, cutting half an inch above and below every bud; set these all round the edge of the pot, and place them in the stove or in a hotbed. In due time every one will grow, and throw down abundance of roots. Let them be potted into three-inch pots, and kept growing; and when these pots show the roots through the bottom, or draining hole, change them for larger. Continue them in the stove until established in these second pots, when one half may be removed to the greenhouse, the others kept in the stove. If bushy plants are required, take off the tops to encourage lateral shoots; if not, let them grow on. These plants having funnel-shaped flowers hanging down from the branches, it is best to let them run up three or four feet, taking off all the side branches, so that they may form standards; then they may be topped, and allowed to form a head. They will always bloom the first year if permitted;

but to form handsome standards it is better to remove all flowers the first year, and get strength into the plant. At the end of the year the leaves will fall, and the plants should be brought into the greenhouse to rest. In early spring prune the branches close in, leaving the upright stem and the three, four, or more branches that have formed the head, two eyes, or at most three eyes, long from the trunk. As they branch out rub off the weak shoots, and those that are likely to crowd better ones, leaving only such as are likely to form a handsome head. These, if allowed to grow, will form a noble head to the plant—the branches in due time loaded with flowers. When the plants are turned out on a lawn it is usual to remove them out of the pots, and plant them in the ground. The soil best adapted for them is rich fibry loam, with rotten dung and sand. The annual species are coarse-leaved plants, known in gardens as *Thorn-apples*. The plants being annual are all raised from seed, which, to hasten the flowering, should be sown in heat, and planted out in May where they are to bloom. The self-sown seeds will vegetate in May, and bloom later in the season. The seeds should be gathered before they scatter themselves about. *D. sanguinea*, flowers red and orange, in August. *D. Knightii*, flowers white, in August, and has a double corolla very large. *D. lutea*, flowers yellowish, in August.

DAUBENTONIA. [Leguminosæ, § Papilionaceæ.] Stove or greenhouse shrubs. Soil, peat and loam. Propagated by cuttings.

DAUBENYA. [Liliaceæ.] Curious greenhouse bulbs. Soil, rich sandy loam. Increased by offsets.

DAVALLIA. [Polypodiaceæ.] Beautiful evergreen stove and greenhouse ferns. Soil, turfy peat with sand. Increased by dividing the creeping rhizomes.

DAVIESIA. [Leguminosæ, § Papilionaceæ.] Very pretty evergreen greenhouse shrubs, requiring the treatment of *Chorozemas*. Soil, sandy turfy peat. Increased by cuttings in sand under a bell-glass, or by seeds.

DAY LILY. See *HEMEROCALLIS*.

DELPHINIUM. **LARKSPUR.** [Ranunculaceæ.] An extensive genus of hardy plants, chiefly perennials, but containing some annuals and biennials, mostly plants of con-

siderable beauty, and favourites in gardens. The perennials are increased by dividing the roots in spring, and need not be disturbed oftener than once in three years to part the roots. The double variety of *D. grandiflorum* has its beautiful flowers an intense blue colour. The best of the annuals, *D. consolida* and *D. Ajacis*, should be sown where they are to bloom, and thinned to three or four inches apart. They ought to be grown in every garden, and require only good garden soil. The branching Larkspur is hardy enough to stand the winter if sown in autumn. *D. azureum*, *D. Barlowi*, and *D. grandiflorum*. There are numerous other showy varieties, among which are *D. Hendersoni*, *D. Wheeleri*, and *D. formosum*.

DESFONTAINIA. [? Gentianaceæ.] A beautiful hardy or half-hardy holly-like evergreen shrub. Peat and loam. Cuttings. *D. spinosa* is worth a place.

DEUTZIA. [Philadelphaceæ.] Handsome hardy deciduous shrubs, well adapted for pot culture and for forcing, as well as for the front ranks of the shrubbery border or the conservative wall. They are propagated by suckers, which come up from the root in plenty, and by layers: the latter bloom earlier and somewhat more freely than plants from suckers, which are more apt to ramble. In layering it is only necessary to cut away part of the wood at the place intended to be layered, and to peg that part down three inches below the surface; the layers will have thrown out roots by the next season, when they may be removed, cut down to about four inches high, and planted a foot apart from each other in beds where there is a mixture of peat earth. Here they may grow a season, and will then be fit to take up for potting. In the first growth they make after this the too vigorous branches must be checked, and the form of the plant be regulated a little. They may be forced the next season. If kept in pots they must be changed from small to greater, though, as they get larger, they are none the worse for being a little starved. They are also valuable plants for planting against ornamental walls, for which object they have only to be put out in any ordinarily good soil, and require little attention beyond pruning or training. Plants for forcing must be prepared in pots, and kept in store, like Roses and

other hardy subjects used for that purpose. The best are *D. gracilis*, white, and *D. scabra*, white.

DEVIL IN A BUSH. See NIGELLA.

DIANELLA. [Liliaceæ.] Greenhouse or half-hardy fleshy-rooted perennials. Soil, sandy peat and loam. Increased by seeds or division. Nearly all the introduced species are blue-flowered, and natives of New Holland.

DIANTHUS. PINK. [Caryophyllaceæ.] The majority of the Pinks are highly ornamental hardy perennials, particularly suited for rockwork, and almost all of these are alike desirable in such situations. All the hardy perennials prefer a light dryish soil, and are increased by cuttings or pipings, and also by seeds, which should be sown as soon as ripe. There are a few half-hardy sub-shrubby kinds, which may be kept in a dry frame or greenhouse, and should be potted in sandy loam and peat: they propagate by cuttings. The Indian Pink (*D. Chinensis*) is a richly-coloured hardy annual, and the only annual worth growing.

PINK (*Dianthus plumarius*, vars.).—The fancy or florists' race of Pinks is extensive. They require every year to be struck from pipings, which are the shoots that spring out round the base of the stem: these are taken off at blooming time, or rather later, and each shoot is cut across just below the third joint, the lower pair of leaves from the heart being cut clean away. A bed is made of rich sandy loam and dung, and the surface is made quite soft with water, in which state pipings or shoots are inserted all over it not more than an inch apart. after drying for an hour or two it is covered with a hand-glass, which is not disturbed for some days, and then only to water the pipings if they require it. A good deal can be done towards moistening them by watering outside the glass. In three weeks they will have struck root, and the glass may then be tilted a little to admit some air, and in a few days more may be taken away, that they may have full benefit of the air. After a few days they may be taken up, and planted out in four-foot beds: six inches apart every way will be the proper distance for the plants. The soil in which they grow should be the loam from rotted turves; or, if ordinary garden soil be used of necessity, a good dressing of dung should be forked in before the Pinks are planted. In May,

when they send up their bloom-stalks, remove all but the best from each plant, and as these advance take off all but two or three buds from each stalk; and when these have swelled almost to bursting, but not quite, tie them fast round the middle with a piece of bass matting, and tear the bud-cover down to the tie at its five natural divisions. After the bloom is over, the grass, as it is called—that is, the young shoots—will be ready to strike for the next year. The best double Pinks do not seed freely, but they do occasionally; and such seed should be prized as a means towards obtaining new varieties of merit. The seed should be sown in wide-mouthed pots or seed-pans, not too thickly, and placed in a cold frame. If not too much crowded when they come up, the plants may remain there till they are large enough to plant out, in like manner with the pipings or cuttings, and the treatment is the same throughout. As they bloom throw away instantly every one that is semi-double or single, and all that are not as good or better than the varieties already in cultivation. A very few of the seedlings may be worth trying again, and of these a few cuttings should be reared. The flowers of seedlings should be examined daily, almost hourly, in order to destroy at once those that are good for nothing, for single and semi-double kinds can only spoil the seed of the better sorts. It is not to be expected, with every care and advantage in seed-saving, to get one improved variety out of fifty, or even a larger number of seedlings. For list of the best varieties see the latest trade catalogues.

CARNATION AND PICOTEE (*Dianthus caryophyllus*, vars.).—These superb and highly-scented flowers are precisely similar as to the requirements of their cultivation. They are propagated chiefly by layering. The shoots at the bottom of the stems being longer than those of the Pink, can be pegged under the surface to strike root, which they do when half divided from the parent; for by cutting them half way through, and pegging the cut part firmly under the surface, the supply of nourishment from the parent plant being diminished, they endeavour to compensate for their loss by forming roots. The shoots in this case do not droop, because the connection with the old plant is not cut off, as in the removal of a piping; consequently there is not so much risk

of losing any of them. In cutting these stems the knife should go in slanting just under a joint (about the third joint from the top), and when nearly half through they should be split up half an inch above the joint, the sloping piece below the joint being cut off evenly. The half-joint thus separated will, when pegged down, send forth roots. These layers, as they are called, may be all cut off in September, and potted in four-inch pots, two in a pot, with nothing but clean good loam from rotted turves—no dung. In February prepare rich mould to bloom them in: half loam from rotted turves, a fourth decomposed dung, and the other fourth turfy peat and silver or other very clean sand, mixed well and left in a heap. In the beginning of April get twelve-inch pots; fill one-third with shreds of broken pots, then a third of the proper soil, then turn out the ball of earth with the pair of plants in it, and having placed it in the middle at the proper depth, fill up all round; press the soil to the ball of earth, and after adjusting it properly, and filling up to within half an inch of the top edge, place the pot on a dry hard flooring, the object being twofold—to prevent worms entering at the bottom hole and disarranging the soil, and to keep this hole, which is essential for drainage, from getting filled up, or in any way stopped, to prevent the egress of whatever superfluous water may reach the soil. Go through the whole in this way, and then water freely, taking all possible precaution to prevent vermin from getting to the pots: one plan is to raise shelves, with their supports standing in pans of water. When the stems rise for bloom treat them in the same way as Pinks in every respect, even to the flowering. The Carnation differs from the Picotee only in the disposition of the colouring—the Carnation is striped or ribboned outwards, the Picotee is edged or feathered inwards. It is a prevalent practice to put cards on the buds of the flowers, that the petals may be displayed on them as they open. For a list of the best varieties of these flowers see the latest trade lists.

SWEETWILLIAM (*D. barbatus*).—This hardy perennial is best treated as a biennial, and raised annually from seeds, except in the case of distinct and particularly handsome varieties, which can only be increased by propagating from the shoots produced from the root, and which may be either treated as

cuttings or layers. The seeds should be sown in June in a bed of light open soil; and when the seedlings have formed a pair or two of leaves they may be pricked out three inches apart on a bed of light rich earth, in which they may grow till autumn, and will gain strength for flowering. In September, or early in October, remove them with good balls of earth to the borders or beds where they are to flower. When intended for beds, however, any convenient period of open weather between September and February may be chosen for transplanting them; but they are best planted early in their flowering situations. For beds this would be done annually, the old roots being either destroyed after seed is secured, or transplanted to the borders, or, in the case of new and striking varieties, removed and carefully propagated. In borders the old roots, if vigorous enough, may be left to bloom again. Young plants reared from cuttings or layers may be treated exactly like seedlings. The best soil for the blooming plants is a sandy loam, well manured with decayed leaf-mould and stable-dung. The varieties of different colours of Sweet-william are now numerous, but they are hardly advanced enough for selection by name.

DICHILUS. [Leguminosæ, § Papilionaceæ.] Greenhouse evergreen shrub. Soil, sandy peat. Propagated by cuttings in sand under a bell-glass.

DICKSONIA. [Polypodiaceæ.] A genus of large-growing and handsome ferns. Soil, turfy peat. Increased from the spores, or in some of the kinds by division. With the tree-like species it is best to import good-sized trunks, as young plants are a lifetime growing any considerable size. This may be done thus:—Cut off all the fronds an inch or two from the trunk, and without bruising it, a month or two before the plant is to be shipped, and at the same time remove the soil down to the roots, and cut these also clean through at six inches from the stem: pack in a dry case. On its arrival set the base on the soil of a three-parts-filled pot or tub, which must be thoroughly drained: the soil should be turfy peat, mixed with a nearly equal part sand. Keep it in a close moist heat, but *give no water* until the young fronds start and are nearly full grown. *D. antarctica* will sometimes reach fifteen feet high.

DICTAMNUS. FRAXINELLA. [Rutaceæ.] Showy hardy perennials, with leaves something like those of an ash tree: hence the name *fraxinella*, or little *fraxinus*, the latter being the name of the ash. They grow in common garden soil, preferring loam. Propagated slowly by dividing the roots, or more readily by seeds, which should be sown as soon as ripe in open beds.

DICTYMIA. [Polypodiaceæ.] Greenhouse evergreen ferns. Soil, peat, loam, and sand. Increased by division. *D. attenuata*, one foot high, is the best.

DIDISCUS. [Umbelliferæ.] A curious and rather pretty half-hardy annual. It should be sown in March in a warm frame. Some of the plants may be grown on in frames for blooming in pots in the greenhouse; others should be hardened to plant out in a warm situation out of doors in June. Rich light soil. Increased by seeds.

DIELYTRA. [Fumariaceæ.] Beautiful dwarf hardy herbaceous perennials, once called *Fumarias*. They grow well in any rich open soil, and increase by division. *D. spectabilis*, the most beautiful of all, propagates readily by cuttings of the young shoots in spring, managed as Dahlia cuttings are, or by dividing its tuberous roots, which must not be too much dried in winter.

DIERVILLA. [Caprifoliaceæ.] A hardy deciduous shrub. Moist peaty soil. Increased by suckers or by cuttings. *D. lutea*, flowers yellow, in June.

DIETES. [Iridaceæ.] Handsome Iris-like plants, requiring the protection of a frame, and growing freely in light loamy soil. Increased readily by division.

DIGITALIS. FOXGLOVE. [Scrophulariaceæ.] Hardy perennials, with a few biennial species, mostly showy or pretty plants for the borders. The common Foxglove (*D. purpurea*) can hardly be esteemed as a garden flower, common as it is in a thousand places; but it is, nevertheless, a very handsome plant. They are all increased readily by seeds. Sow in August if the seeds are ripe, if not in April, on moderately good ground, and rather thinly: thin the plants to six inches apart. Those taken up, if required, may be planted elsewhere six inches apart, but those not removed will be the strongest. The autumn-sown ones may be removed in spring, with good

balls of earth, to the places where they are to flower; the summer-sown crop are better transplanted early in autumn. If the object is to *improve* the common or any other sorts, sow in beds, and thin out the plants as before, but leave the rest to bloom. When they come into flower pull up and destroy everything commonplace, and mark the best for seed.

DILLWYNIA. [Leguminosæ, § Papilionaceæ.] Ornamental evergreen greenhouse shrubs. Their cultivation assimilates exactly with that of *Chorozemas*. Soil, sandy peat, with one-third light loam. Increased by seeds, or by cuttings in sand under a bell-glass. *D. ericifolia*, yellow; *D. floribunda*, yellow; *D. glycinifolia*, yellow and red; *D. pungens*, yellow; *D. speciosa*, yellow, crimson.

DION. [Cycadaceæ.] Handsome palm-like evergreens. Soil, rough sandy loam. Propagated by suckers or seeds when obtainable. *D. edule*.

DIONÆA. VENUS'S FLY-TRAP. [Droseraceæ.] This is a vegetable curiosity. Its leaves have a movable and excitable appendage, which closes up like a gin-trap when certain hairs on its surface are touched, and imprisons whatever may have caused it to collapse: small insects are often caught, and hence its trivial name. It requires much the same treatment as *Cephalotus*; that is, to be potted in chopped sphagnum, with a very little peat and plenty of pure sand intermixed. It requires to be constantly moist. *D. muscipula*, flowers greenish yellow, in July.

DIOSMA. [Rutaceæ.] Greenhouse evergreen shrubs, remarkable for their strongly-scented foliage, agreeable to some persons. Some of the species have been removed to *Adenandra*, *Agathosma*, *Baryosma*, &c. They are propagated by cuttings of the short tips of the young shoots, from which the foliage must be taken off about three-quarters of an inch up, and the stem cut through very clean close up to a joint. The cuttings are to be inserted in pots filled with turfy peat below, and sandy peat above, the top half-inch being pure sand; then covered with a bell-glass, watered moderately, and placed in the greenhouse. They will very soon strike, and may be potted into thumb-pots first, and when they have filled these with roots changed to three-inch pots, then to

five-inch. The plants must be brought into shape by continually stopping the most vigorous branches, and so causing lateral shoots. They require to be carefully watered. The soil for the rooted plants should be turfy peat, made rather sandy.

DIOSPYROS. [Ebenaceæ.] A genus containing some hardy trees and greenhouse evergreen shrubs. They are not of much moment.

DIPHYLLEIA. [Berberidaceæ.] A pretty hardy herbaceous alpine perennial. Soil, sandy peat. Increased by division. Requires a shady situation.

DIPLACUS. [Scrophulariaceæ.] Greenhouse or half-hardy showy shrubs, related to *Mimulus*, and blooming tolerably well in the borders during summer if well-established or old plants are employed. Cuttings root readily in sandy soil, put in a frame or hand-glass, and the striking root is hastened by a little warmth. They may be potted in compost of loam, lightened with turfy soil, or leaf-mould and sand. Like other free-growing subjects, the young plants must be shifted on, and frequently topped to keep them bushy, until they get to a blooming size, or as large as may be required. If good plants are required, strong young plants should be prepared through one summer for blooming the following spring. Smaller plants, to bloom the same year, may be raised in spring. *D. glutinosus*, orange yellow; *D. puniceus*, deep crimson; and *D. Californicus*, nankeen, are the best.

DIPLADENIA. [Apocynaceæ.] Very beautiful evergreen stove shrubs, of which the most familiar are *D. crassinoda*, *D. splendens*, and *D. atropurpurea*. These are perfectly manageable as pot plants when trained on cylinder-formed trellises, or they are equally suitable for training up the rafters or pillars, or over the roof of a stove. They are propagated by cuttings, which should be planted in sand under bell-glasses, and placed in a warm frame, or where a slight bottom heat can be given them. When rooted pot them singly into three-inch pots, in a mixture of one-third sandy loam and two-thirds turfy peat, with sand added to make it porous. The plants must be kept in a stove atmosphere, and may be topped once to obtain two or more leading branches,

which for a time may be tied to an upright stake. It is most convenient thus to train them until the plants are strong enough to be put into large pots for flowering, because after the cylinder trellis is brought into use it is very inconvenient to have to re-train the plants in consequence of their branches becoming intertwined. By the time they have filled a five-inch pot with good healthy roots they may be put into a large pot of a foot or fifteen inches in diameter, if this be during the period between February and the beginning of August. From August to February it is better to avoid shifting the plants into so large a body of soil. After this shift, with which must be associated thorough drainage, and a rough turfy staple of soil of mixed peat and loam as before, the cylinder trellis may be put down, and the branches trained closely in a spiral manner until the trellis is covered. Occasionally one of the shoots should be taken in a direction downwards, so as to fill up the lower part of the trellis, which is most liable to get bare of branches. The plants while making this growth, which will probably be rapid, should be placed where they will have a free exposure to light with a flow of fresh air, accompanied by the proper temperature of a plant stove. The genus has been separated from *Echites*, and contains some other handsome plants, with tuberous roots and herbaceous annual stems.

DIPLOCOMA. [Compositæ.] A showy half-hardy perennial. Common garden soil. Increased by division.

DIPLOLÆNA. [Rutaceæ.] A greenhouse evergreen shrub. Soil, two-thirds peat, the rest sandy loam, including one-sixth of sand. Propagated by cuttings in a gentle heat.

DIPLOPAPPUS. [Compositæ.] Hardy or half-hardy perennials, some of them sub-shrubby. Related to *Aster*. Common loamy soil. Increased by cuttings or by division.

DIPLOELTIS. [Sapindaceæ.] A pretty greenhouse evergreen shrub. Soil, peat and sandy loam. Increased by cuttings.

DISA. [Orchidaceæ.] A genus of terrestrial greenhouse orchids, natives of the Cape of Good Hope, some of them of great beauty, but scarcely cultivable, so far as experience has yet gone, though worth any further trial. The tubers

should be imported, getting them *after flowering*, when the leaves begin to decay; not, as it is to be feared is generally the case, when they are in full bloom. They grow in boggy places, in peat soil; and this, with the dry hot atmosphere of South Africa, should be borne in mind in making the attempt to grow them. They appear to require less moisture when at rest than at other times.

DISOCACTUS. [Cactaceæ.] A pretty stove evergreen succulent shrub, requiring the general treatment of *Epiphyllum*. The pretty purplish flowers are succeeded by blood-coloured berries. Soil, turfy loam, with an equal proportion of leaf-mould, brick or mortar rubbish, and sand. Propagated by cuttings, which should be dried a little before planting.

DISPERIS. [Orchidaceæ.] A genus of Cape terrestrial orchids, for the culture of which see *DISA*.

DISPORUM. [Melanthaceæ.] Half-hardy herbaceous perennials. Soil, peat and loam. Increased by division or by seeds.

DITTANY OF CRETE. See *ORIGANUM DICTAMNUS*.

DODECATHEON. *AMERICAN COWSLIP.* [Primulaceæ.] Very pretty early-flowering dwarf perennial herbaceous plants, quite hardy, preferring to be planted in a soil where there is a good proportion of loam and peat earth, and requiring a cool situation. The flowers are in shape like a half-opened inverted parasol. They are increased without difficulty by dividing the roots. Seeds are also produced, from which young plants may be raised by the same process as in raising seedlings of the *Auricula*, except that, when large enough, these may be planted out in the open ground. There are several varieties of the common or Mead's Virginian Cowslip, differing in the size and colour of their flowers.

DOG'S BANE. See *APOCYNUM*.

DOG'S-TOOTH VIOLET. See *ERYTHRONIUM*.

DOLICHOS. [Leguminosæ, § Papilionaceæ.] Climbing plants of little interest. Soil, peat and loam. Best propagated by seeds.

DOODIA. [Polypodiaceæ.] Pretty greenhouse evergreen ferns, of small growth. Soil, peat, loam, and sand. Propa-

gated readily from the spores. The chief are *D. aspera*, *D. blechnoides*, *D. caudata*, and *D. media*.

DORONICUM. LEOPARD'S BANE. [Compositæ.] Showy hardy herbaceous plants, with large yellow flowers. They are propagated easily by dividing the roots in autumn or spring, and grow in any ordinary garden soil. Except for the variation of the blooming season, there is scarcely difference enough in their appearance to render it necessary to cultivate more than one species.

DORYANTHES. [Amaryllidaceæ.] A gigantic half palm-like, half lily-like plant, sending up a scaly stem from fifteen to twenty feet high, bearing at top a vast head of magnificent crimson blooms, much like the individual blooms of the Jacobæan Lily (*Amaryllis formosissima*), but a little larger. The plant requires loam, peat earth, and dung in equal parts; is propagated from suckers; and should be potted in small pots, to be changed, as the plant advances in size, from time to time. It requires a greenhouse or conservatory: no frost should reach it. It is some years before it attains a size to bloom. We have known it to bloom with greenhouse culture in twelve years; and no doubt it might be hastened three or four seasons by stove culture, although that would make it more weakly. *D. excelsa*, twenty feet high, flowers crimson, and is a noble plant.

DORYCNIUM. [Leguminosæ, § Papilionaceæ.] Hardy and half-hardy perennial and sub-shrubby plants, of small beauty. Common loamy soil. Propagated by seeds.

DOSSINIA. [Orchidaceæ.] A genus closely related to *Anæctochilus*, and requiring precisely similar management. *D. marmorata* is the only species in cultivation: in this the velvety leaves are copper-coloured, overlaid with a network of golden lines.

DRABA. WHITLOW GRASS. [Cruciferae.] Hardy perennials of small size, adapted for rockwork, and of very easy culture. Increased by division. There are upwards of thirty perennial species, all dwarf and suitable for rockwork, the flowers mostly white.

DRACÆNA. [Liliaceæ.] A genus of fine palm-like shrubs or trees, but for the most part requiring stove treatment. Soil, rich fibry loam. Increased by suckers, by side-

shoots planted as cuttings in strong heat, or by portions of the stem, also in strong heat, to force out the dormant buds. The variegated-leaved sorts are very handsome plants. *D. terminalis* and *D. nobilis* are the best.

DRACOCEPHALUM. [Labiatae.] **DRAGON'S HEAD.** The hardy perennial species of this genus are pretty border flowers, not particular as to soil. They are propagated by division of the root. The hardy annual species may be sown in the open border in March and April.

DRACOPHYLLUM. [Epacridaceae.] Greenhouse evergreen shrub. Soil, light peat and sand, with a third sandy loam. Propagated by cuttings in sand under a bell-glass.

DRACOPSIS. [Compositae.] A Rudbeckia-like annual, quite hardy. The seeds may be sown in the open borders any time during March or April, and it merely requires good garden soil. *D. amplexicaulis*, which flowers yellow, is the best.

DRACUNCULUS. [Araceae.] Hardy herbaceous perennials, with a very curious-looking inflorescence. Loamy soil. Propagated by division of the roots.

DRYANDRA. [Proteaceae.] Fine greenhouse evergreen shrubs, more remarkable, however, for the beauty of their foliage than of their flowers. They should be potted in a fibry compost of peat and loam, with a fourth part sand, and the pots must be well drained. Propagated by cuttings in sand under a bell-glass. They are closely allied to the Banksias.

DRYNARIA. [Polypodiaceae.] Handsome greenhouse evergreen ferns, most of the species requiring stove heat. Soil, turfy peat, loam, and sand. Increased by division. The principal are *D. Billardieri* and *D. pustulata*.

DYCKIA. [Bromeliaceae.] A curious aloe-like greenhouse perennial, producing handsome blossoms. Soil, sandy loam, mortar rubbish, leaf-mould, and sand. Increased by suckers.

DYSOPHYLLA. [Labiatae.] Herbaceous plants, mostly requiring greenhouse protection. Sandy soil of loam and leaf-mould. Increased by cuttings in sand in a hotbed in spring, or by division.

ECHEVERIA. [Crassulaceae.] Very pretty greenhouse evergreen succulent plants. They should be potted in a compost of light loam, mixed with a third part of pounded bricks,

or old brick and lime rubbish; the pots must be well drained, and in winter little or no water must be given. They require to be kept in the greenhouse beyond the reach of frost. Cuttings or suckers, dried a little before planting, after being detached, will readily afford young plants; and all the species *may* be propagated by planting the leaves as cuttings, and especially by means of the small leaves of the flower-stem, which should be merely laid on the surface of the soil until they have produced a young shoot.

ECHINACEA. [Compositæ.] Large-growing hardy perennials, of the habit of *Rudbeckia*, and requiring similar treatment. Common garden soil. Propagated by division.

ECHINOCACTUS. **HEDGEHOG CACTUS.** [Cactaceæ.] A genus of succulent herbs or sub-shrubs, of a leafless depressed figure, the surface varied by alternating perpendicular channels and ridges, the latter armed at short intervals with clusters of rigid, more or less lengthened spines. The plants are therefore lumpish masses, covered over with spines; and hence the popular name. They require a greenhouse, and must be potted in well-drained pots. The compost should be mellow loam, intermixed with one-fourth leaf-mould, one-eighth sand, and one-eighth bricks or potsherds broken up into very fine fragments or dust. They require much exposure to light and sun, and in winter must be kept almost dry: even in summer the supply of water must be so far limited that the soil never becomes soddened. They are admirable plants for cultivating in a Wardian case, in a sitting-room window, or on a staircase, from their grotesque appearance, small size, and the slow progress they make. They are increased by planting any lateral offshoots as cuttings, which should be exposed to dry for a few days before planting. There are upwards of sixty reputed species in cultivation, any of which may be indiscriminately selected. Their blooming season is very uncertain, and the blossoms of many of the species are not at all showy.

ECHITES. [Apocynaceæ.] Beautiful stove evergreen twiners, now separated into various genera, including *Dipladenia*, *Chonemorpha*, *Aganosma*, *Parsonia*, and *Hamadictyon*. The general treatment of *Dipladenia* is suitable to the whole

of these. Soil, turfy peat, loam, and sand. Propagated by cuttings in heat.

EDGEWORTHIA. [Thymelacææ.] A greenhouse shrub. Soil, peat and loam. Increased by grafting or inarching on the Daphnes, or by cuttings under bell-glasses in sand.

EDWARDSIA. [Leguminosæ, § Papilionacææ.] Half-hardy shrubs, with beautiful pinnated foliage. In a dry sheltered situation all the species inhabiting a temperate climate will succeed against an open wall, though sometimes partially injured by excessive cold. Sandy peat and loam. Increased by cuttings.

EGG PLANT. See SOLANUM OVIGERUM.

ELÆAGNUS. OLEASTER. [Elæagnacææ.] A genus of shrubs with silvery foliage, consisting chiefly of hardy deciduous species, with a few greenhouse evergreens. For the former, which are useful in shrubberies, the common garden soil will suffice; and they are increased by seeds, cuttings, or layers. The latter should have loam, with a third peat or leaf-mould, and a portion of sand, and are increased by cuttings. They are all interesting, being covered over with membranous scales, which form beautiful microscopic objects.

ELÆOCARPUS. [Tiliacææ.] Evergreen shrubs, some of the species requiring stove heat. Soil, loam and peat. Increased by cuttings in sandy soil under bell-glasses.

ELISENA. [Amaryllidacææ.] A handsome greenhouse bulb. Soil, loam and sand in equal parts. Increased by offsets. *E. longipetala* is the best.

ENCEPHALARTOS. [Cycadacææ.] Greenhouse palm-like plants, with a thick trunk and crown of beautiful pinnate leaves or fronds, many of which may be preserved in a warm greenhouse by keeping them rather dry during winter. Soil, sandy, fibry loam. Increased by suckers or offshoots when these are produced.

ENCHANTER'S NIGHTSHADE. See CIRCEÆA.

ENKIANTHUS. [Ericacææ.] Greenhouse evergreen shrubs of considerable beauty. They are increased by cuttings of the ripe wood planted in sand, with slight bottom heat. Soil, an equal mixture of loam and peat earth. They must be potted very carefully, as the roots are liable to get unhealthy, especially if they are over-watered when not grow-

ing, and are in too large or badly-drained pots. The best are *E. quinqueflorus* and *E. reticulatus*.

EPACRIS. [Epacridaceæ.] Beautiful greenhouse ever green shrubs, blooming in spring and early summer. They may be grown in turfy peat, with about an eighth part each of silver sand and good mellow loam, the latter being omitted until the plants get vigorous. The plants must have as much air as can possibly be given, and every pains should be taken to prevent their growing lanky. As, however, they are inclined to shoot upwards rapidly, they must be checked by taking the tops off when they have grown four inches high, which will cause lateral shoots to be produced; and this topping must be repeated until the plants have become bushy. A pit is better for them than a greenhouse, if the frost could be kept out, because they are nearer the glass. Whenever any shoot becomes vigorous, and grows faster than the rest, check the growth by pinching out the end: lateral branches will be the result, instead of the elongation of the main shoots. When, however, size and form have been secured, then the shoots must be permitted to grow longer in order to bloom, the flowers being borne all along the strong annual shoots as well as on the shorter scrubby branches. After the bloom is over cut the branches back freely, and as soon as the plants begin to grow afresh put them in a frame, where they may be kept rather moist, with free supplies of air. Vigorous shoots will be the result; and these, after growing about six inches long, may be topped, the strongest twice, the weaker once; after which they must be suffered to grow on, and when growth slackens they must be placed in a light airy place, in order to stop further rapid elongation, and ripen the shoots which have been already produced. Slow growth is desirable, for the nearer the leaves are to each other the handsomer the specimen; and rapid growth is always against this, because, as the branches lengthen, the leaves are placed farther apart. The Epacris is propagated by cuttings of the tops of the young shoots planted in sand on a compost of sandy peat, the leaves being taken off the lower half-inch, that the cutting may be the more easily inserted in the sand. A bell-glass must be placed over them, and slight bottom heat will hasten the striking, but it is not necessary. When they have struck

pot them singly into the smallest-sized pots, and keep them close and shaded till they have taken root, when they should be removed to the pit or greenhouse to be grown in, as we have directed. Examine daily to see which requires water, and do not give to all because one has become dry; for some plants take up water faster than others, and it will not do to let any of them have too much water. Seed may be sown in the spring in sandy peat, and slightly covered. When the young plants are large enough pot them, and treat them as directed for cuttings. The varieties are very numerous.

EPIGÆA. [Ericaceæ.] A lovely little procumbent evergreen shrub. The plant has a creeping stem, which spreads by degrees over the ground, rooting as it extends. It requires a bed of peat soil, and a cool, shady, somewhat moist situation. If planted between Rhododendrons in situations where these thrive, if they do not too far shade the surface, the Epigæa would flourish. It makes a very pretty pot plant to be classed among the frame subjects, requiring shade and coolness in our summers. *E. repens*, flowers white. *E. rubicunda* has the flowers of a beautiful rose red.

EPILOBIUM. See CHAMÆNERION.

EPIEDIUM. BARRENWORT. [Berberidaceæ.] Dwarf hardy perennials, suitable for rockwork or for pot culture. They like a soil of mellow loam and peat in equal proportions, and mixed with an eighth of sand. On rockwork they should be planted in similar soil. They are quite hardy, but when grown in pots should be sheltered in cold frames with the choicer alpine. Division of the root is the most ready means of propagating them, and this should be done soon after they have done flowering, that the plants may get well established before winter.

EPIPACTIS. [Orchidaceæ.] Pretty herbaceous perennials. Soil, moist peat. Propagated by division.

EPIPHYLLUM. [Cactaceæ.] A group of the Cactus family, with flat leaf-like branches, and very showy blossoms. The common Epiphyllum (*E. phyllanthoides*, or *E. speciosum*) was formerly called *Cactus speciosus*. The soil and treatment may be in all respects the same. Among a number of plants some are showing flower at all times of the year, and may be

put in the stove to bring them forward. The seeds of all the family may be sown in pans, and placed in the stove when the plants are large enough to prick out, which job must be done with gloves on, or they will greatly punish the hands with their prickles. They may be put four or five in a pot, and kept growing in the stove until they indicate a want of rest; then cease to give them water and put them out into the greenhouse. When they make a start again pot them all into sixty-sized pots, and change them from time to time as they are filled with roots. Portions of the branches from one inch long upwards will strike root without any care or trouble, merely requiring to be dried a little, and then planted in dryish sandy soil. Many persons graft the *Epiphyllum* upon the stronger Cactuses, and it is very effective to graft the weak and pendulous varieties upon the robust, because beautiful-formed standard plants or fountain-like plants may be produced by such means. The *Epiphyllum truncatum*, if grown on its own bottom, droops all round the pot; but if grafted on any of the strong-growing *Cereus* trunks (*C. speciosissimus* is the best), it forms a splendid weeping tree, which ought to have a stem two feet high, for it will droop as much as that; and, as all the flowers come at the ends of the shoots, such plants are very beautiful when well grown and flowered. Good plants have been produced with an upright trunk of *Cereus*, having three distinct series of branches of *E. truncatum*—one drooping nearly to the bottom, a second smaller higher up, nearly drooping to that, and one at top nearly reaching the second. The grafting is easily done: merely cut a slit in the stock, put in a bit of the kind to be grafted, and tie it firmly. If the graft is of the larger sorts cut the part to be inserted to the form of a wedge, insert it, and stick a pin through both, to hold the scion in its place. The best soil for these free-growing Cactuses is made of loam, peat, and rotten dung, one-fourth each, added to one-fourth part consisting of mortar rubbish and clean sharp sand in equal proportions. The plants should always be “roasted” in a hot dry place out of doors for a couple of months in the height of summer, after they have made a growth of young shoots. Three or four are generally cultivated—*E. Ackermannii*, *E. Jenkinsonii*, *E. speciosum*, and *E. truncatum*.

ERANTHEMUM. [Acanthaceæ.] Showy stove evergreen soft-wooded shrubs. They bloom for the most part late in summer, in the autumn, or winter, according to the culture they receive. The soil required for them is a compost of loam two parts, peat one part, thoroughly decomposed cow or horse-dung and sand together one part. The plants may be cut down to pretty near the old wood every season after blooming. Cuttings may be struck in heat under a bell-glass, and in sandy soil: one joint below and one above the surface is length enough. When they are struck they may be potted in three-inch pots, with good drainage. Give them plenty of water, and keep them in the warmest part of the stove until they become good strong plants. At the same time that the older plants have done flowering, the young ones may be placed with them in the coolest part of the house to rest, and here only get enough water to keep them alive. The flowers of most of this tribe come out in spikes at the ends of the branches; and, although they soon look untidy when they begin to fade, they are gay enough while in perfection, which happens among some or other of them the greater part of the year. In short, they are free bloomers, and are a long while in flower. The best are *E. albiflorum*, white; *E. pulchellum*, blue; *E. variabile*, pale purple. There are many other species in cultivation.

ERANTHIS. WINTER ACONITE. [Ranunculaceæ.] The Winter Aconite is one of those simple flowers which please more on account of the season of their appearance than their beauty. This commences to bloom in January, often amidst frost and snow, and through February it continues to decorate the garden and shrubbery. It is altogether not more than three inches high, the flowers being seated one on each pair of flat-lobed leaves, which terminate the stalk. They look like little yellow cups, with their bases surrounded by green frills. It is tuberous, and only requires to be planted in the soil and left to itself. Planted just within the margin of a flower-bed it interferes with nothing; and, if placed thick enough, makes a conspicuous edging for some time. It is also very well placed in patches among shrubs, or in any other wilderness scenery, which it serves to enliven at a dreary season.

EREMÆA. [Myrtaceæ.] Greenhouse evergreen shrubs

Soil, peat and sandy loam. Propagated by cuttings in sand under bell-glasses.

EREMOSTACHYS. DESERT ROD. [Labiatæ.] Hardy herbaceous perennial, requiring protection from wet in winter, and a sandy, loamy soil. It is best to preserve some plants in pots in a dry frame during winter. Increased only by seeds.

ERICA. HEATH. [Ericaceæ.] This very extensive genus of small evergreen shrubs are chiefly natives of the Cape of Good Hope, and require the protection of a greenhouse or dry frame in winter. The growth is as simple as it is singular. Anything short of frost is not too cold for them; no wind is too high for them; hardly any soil is too poor for them; but forty-eight hours' neglect of watering, when they want it, destroys them. They strike from cuttings under a bell-glass, in pots of well-drained, firmly-pressed sandy peat, covered by half an inch of clean silver sand, the bell-glasses being lifted frequently, wiped dry, and then replaced. The cuttings should be the tops of the moderately strong-growing shoots, taken about an inch long. When struck they require potting in a soil composed of three parts turfy peat, rubbed through a coarse sieve, and one part clean silver sand, well mixed together some time before being used. Pot the young plant no deeper than it was when in the cutting-pot; shift it when its roots fill the pot; water always with rain water, or, for want of that, soft river water. Mildew is the greatest enemy of Heaths, to avoid which permit a free circulation of air about them at all times, night and day, and give every plant plenty of room—as much all around its branches as it occupies. At each successive repotting keep the collar of the plant quite level with the surface—rather higher than lower. A common frame and light, placed on a hard dry foundation, are just the quarters they like; but they must be kept from damp, and daily examined with respect to their want of water. The soil ought not to be too wet; but soil too dry is nearly certain destruction. The plants should not be shifted into larger pots until the others are tolerably filled with roots. All the kinds are beautiful, and the varieties are so numerous that it would be impracticable within our limits to give a satisfactory description of them.

ERINOSMA. [Amaryllidaceæ.] A beautiful little hardy bulb. Soil, sandy loam. Increased by offsets. The only one worth growing is *E. verna*.

ERINUS. [Scrophulariaceæ.] This genus contains some dwarf hardy perennials, which form beautiful objects for pot culture among alpine plants, as well as for rockwork. They prefer light and rather sandy soil. When grown in pots they should have the protection usually given to alpiners, which consists mainly in plunging the pots to prevent frosts from acting on the roots, and in shielding off heavy rains, which saturate the soil, and sometimes, if the drainage gets deranged, become conducive to the decay of the plants by rotting the roots and root-stocks. They are increased by division, which should be done about July or August, or by seeds sown as soon as they ripen. The greenhouse subshrubby species are referred to **NYCTERINIA**.

ERIOBOTRYA. **LOQUAT.** [Pomaceæ.] Half-hardy evergreen fruit trees, but seldom fruiting in this country. To obtain this they require stove heat in winter. The foliage is good. Soil, peat and loam. Propagated by cuttings in sand in gentle heat, or by grafting on the Quince.

ERIOCOMA. [Compositæ.] Half-hardy evergreen shrubs. Soil, sandy loam. Propagated by cuttings in sandy soil.

ERIOGONUM. [Polygonaceæ.] Hardy herbaceous perennials. Soil, peat and loam. Increased by divisions or by seeds.

ERIOPHORUM. **COTTON GRASS.** [Cyperaceæ.] Very pretty hardy herbaceous perennials, whose beauty consists in their silvery plume-like heads, formed of long white hairs, which accompany the seeds. Soil, damp peat. Increased by division. There are several native species, any of which might be introduced with good effect to boggy hollows in a rock garden.

ERIOSPERMUM. [Liliaceæ.] Greenhouse bulbous plants. Soil, sandy loam and peat. Increased by offsets.

ERIOSTEMON. [Rutaceæ.] Beautiful evergreen greenhouse shrubs, possessing considerable similarity in the appearance of the blossoms, though not in the general aspect of the different kinds: the flowers are star-shaped, and more or less tinged with a rosy hue. They are compact-growing shrubs

under good management; but to form handsome plants it is desirable to allow the leading shoot to grow up uninjured, and the plants then assume, with a little skill in managing the lateral branches, a perfectly pyramidal form, which is their natural habit of growth. Soil, three parts sandy peat to one of sandy loam. Propagated by cuttings in sand under bell-glasses. They require the general treatment of *Boronia*. The following are the best:—*E. scabrum*, white, in May. *E. buxifolium*, *E. cuspidatum*, *E. intermedium*, *E. lanceolatum*, *E. nereifolium*, all bloom white.

ERPETION. [Violaceæ.] Dwarf tufted-growing herbaceous plants, closely allied to the Violets. They are not hardy, but may be preserved, with the choicer alpine plants, in a frame from which frost is excluded. Their habit, like that of some Violets, is to spread in dense tufts, so as to cover the surface of the soil in which they are grown. In consequence of this creeping, rooting habit, they are very readily multiplied by division. The proper soil for them is peat earth, made rather sandy, the pots being well drained.

ERYNGIUM. ERYNGO. [Umbelliferæ.] A curious genus of perennials, mostly hardy, remarkable for the coloured bracts of the involucre, which constitute the showy part of their inflorescence. They are desirable among hardy herbaceous subjects, the prevailing colour being blue. They belong, in truth, to the umbelliferous order, without having any external resemblance to that class of forms so familiar in the parsley, the celery, the carrot, the fennel, &c. They are raised from seeds, which, like those of other perennials, may be sown in May, either in pots or in a bed. The young plants, if nursed into strength, will bloom the following year; but of these subjects old plants are best if they are kept in vigour. They are not very particular as to soil, but a deep sandy loam is best.

ERYSIMUM. HEDGE MUSTARD. [Cruciferæ.] Hardy plants, chiefly biennial, those which are cultivated being treated as annuals: the majority are uninteresting objects. *E. Perofskianum* is, however, a very brilliant-flowered plant, well adapted for beds in Dutch or geometrical gardens; indeed, there is hardly any other plant which furnishes the colour—an intense orange. It is perfectly hardy, and, if

sown in the spring, will bloom in June and July. It will bloom much earlier if sown in pots like half-hardy annuals, and turned out in May, for it will then have begun flowering in the pots. The plant is too small for planting out, but should be sown where it is to flower. If it comes up too thick let it be properly thinned; but unless it is tolerably close it makes no show, and would fail as a bed plant. It looks well in patches round a border, and in pots among other dwarf blooming plants, because its colour is uncommon; indeed, but for its colour it would not be cultivated, for its habit is weed-like.

ERYTHRINA. CORAL TREE. [Leguminosæ, § Papilionaceæ.] A showy genus, for the most part consisting of stove shrubs. The most popular sorts, *E. cristagalli* and *E. laurifolia*, are, however, both very nearly hardy; that is to say, they will live out of doors with about the same pains taken with the Fuchsia, namely, to cut them down when they have done flowering, and put some tan or litter over them for the winter. These very popular species grow up from six to ten feet high, and along the upper half there are large pea-like, but very noble blood-coloured flowers, forming a spike of bloom several feet long. They are grown, as just mentioned, in the open garden under a south or west wall, or in front of a greenhouse; but they are also beautiful objects in pots. Pot plants are kept dryish and in the greenhouse during the winter. In spring they are started in a hotbed frame or a stove, and as soon as growth commences require fresh potting. Shake the old soil all away, and pot them in fresh compost, in pots large enough to allow of their flowering without shifting: a pot eighteen inches in diameter will suffice to bloom a strong plant satisfactorily. Keep the plants in the stove near the light, and let them grow on till they are nearly in flower, when they may be removed to a conservatory or greenhouse. The plants seem so thoroughly indifferent to seasons, that by starting some into growth at one time, and some at another, they may be had in bloom nearly all the year. When they have done flowering let them rest in the greenhouse, being kept dry, with the pots on their side. It is a good plan to mark the dates on the pots, or take some other means of knowing how long they have been at rest, because, in selecting

them for starting, each plant can then be kept to its proper season. They are best propagated from cuttings of the young shoots, which break from the collar, the same as with Dahlias. the cuttings being put into sandy soil, and kept in a hotbed till rooted. Cuttings of the old flowering stems cut into lengths may also be used. When struck they must be grown on until they become strong enough for flowering. The young plants bloom weakly at first, but they soon acquire strength, as they increase in size every season. The plants intended for outdoor culture may be planted under a south wall, and when they have done flowering they will die down partially; but the stems should not be cut down until the middle of September, and then only to within four inches of the ground; and a large flower-pot may then be turned over them, and covered with a heap of tan or litter. Plants may be had in flower from June to October, or earlier if forced at the proper season.

ERYTHROLÆNA. [Compositæ.] Half-hardy biennial. Propagated by seeds. Sow in April, and keep the plants in a frame during winter; then plant out in May in rich peaty soil, and where there is plenty of space.

ERYTHRONIUM. DOG'S-TOOTH VIOLET. [Liliacæ.] Pretty dwarf hardy spring-flowering herbaceous perennials, with tuberous roots. They grow in good garden soil, preferring a good proportion of peat earth. Increased readily by offsets.

ESCALLONIA. [Escalloniaceæ.] Ornamental greenhouse or half-hardy sub-evergreen shrubs, of which one or two species are useful for covering outdoor walls in moderately sheltered situations, for which purpose they should only be planted where the soil is well drained and porous, and not so rich as to excite luxuriant growth. They are increased by layers (such as a mixture of loam, peat, and road-grit) and by cuttings, and grow well in any moderately good soil. *E. macrantha*, rose pink; *E. Montevidentis*, white; and *E. rubra*, pink or white.

ESCHSCHOLTZIA. [Papaveracæ.] Hardy perennials, which may be cultivated as annuals. The plants are procumbent, and form a low dense branching mass, abundantly furnished with large poppy-like flowers. much more showy than

near. It is one of those flowers which always look untidy, and owes its place in the garden to its bright colour and large blooms. The seed may be sown in the early spring where it is to grow, and when it comes up too close together it must be thinned out. The plant has a tap-root like a small carrot. There may be two complete seasons of bloom; for if the seed be sown in autumn it will come up, and, unless the frost be very severe, stand through the winter and bloom early. If the plants are allowed to shed their seed the place will be overrun as with a weed; and where it has once been sown or planted it will afterwards require only to be thinned, for hundreds of plants will come up. It makes a very brilliant appearance in fine weather, and especially when contrasted with the blue of the *Convolvulus* or Larkspur, and the scarlets and purples of other flowers. The genus has been called *Chryseis*.

EUCALYPTUS. GUM TREE. [Myrtaceæ.] A large genus of greenhouse evergreen shrubs, or rather trees, the majority of which are far too large and coarse in their habit of growth for select collections. They furnish much of the timber of Australia. *E. macrocarpa* is, however, a very handsome shrub, of moderate dimensions. They grow readily in a compost of loam three parts, and peat one part, with the ordinary treatment of the coarser greenhouse shrubs. Propagated by cuttings in sand. Many of the species will survive with slight protection against a wall, and are remarkable plants in such cases. *E. coccifera* has survived the climate of Devonshire as a standard.

EUCHARIDIUM. [Onagraceæ.] Hardy annuals, nearly allied to *Clarkia*, and requiring the same treatment. They are neat, but not very showy. Sow in March and April in the open borders, and in autumn for early blooming.

EUCHILUS. [Leguminosæ, § Papilionaceæ.] Greenhouse evergreen shrub. Soil, turfy peat, loam, and sand. Propagated by cuttings in sand under bell-glasses.

EUCOMIS. [Liliaceæ.] Greenhouse bulbs, from the Cape of Good Hope. They bear long spikes of green flowers, surmounted by a tuft of small leaves. Rich light soil. Propagated by off-sets. Planted deeply at the foot of a wall they will survive the winter.

EUCROSIA. [Amaryllidacæ.] Stove bulb. Rich strong loam. Increased by offsets. The bulbs require to rest in winter. *E. bicolor*, scarlet and green, is the best.

EUGENIA. [Myrtacæ.] A genus of evergreen shrubs, with white blossoms, nearly all of them requiring a stove temperature. Soil, peat and loam equal parts, with sand. Increased by cuttings in sand under bell-glasses. *E. Ugni* is a beautiful half-hardy shrub, very fragrant. *E. apiculata* is hardy, and very beautiful in flower.

EUONYMUS. SPINDLE TREE. [Celastracæ.] A genus of hardy shrubs, of which *E. Japonicus* and a striped variety are fine evergreens with ornamental foliage, requiring slight protection during winter in the climate of London. They grow in common garden soil, and increase by layers, or cuttings planted under hand-glasses. The deciduous kinds are proper for shrubberies. They are not remarkable for beauty in the flowers, but the evergreen species carry a fine foliage; and some of the other species are ornamental in autumn, from the profusion of three-cornered scarlet fruit which they produce.

EUPHORBIA. SPURGE. [Euphorbiacæ.] The Spurges are mostly succulent or fleshy, often oddly-shaped plants, without attractive flowers, and for the most part destitute of conspicuous colours. The flowers, in fact, are in all cases insignificant, the beauty of such as are showy residing in the colour of the bracts which accompany the blossoms. The hardy annual and perennial species are mostly mere weeds; but one or two hardy shrubby kinds, as *E. characias* and *E. amygdaloides variegata*, are worth a place in the borders. They grow in common dryish soil, and increase by seeds. Some of the stove and greenhouse leafless kinds are interesting from their peculiar forms. They should be potted in sandy loam, kept in the greenhouse, and have very little water in winter. *E. splendens*, *Bojeri*, and *fulgens* (the latter often called *Jacquiniaeflora*) are very handsome stove shrubs. *E. splendens* has a branching stem, full of large brown thorns, and bears conspicuous bunches of large waxy scarlet organs, each consisting chiefly of two kidney-shaped bracts, which accompany the true flowers. This species is in flower the greater part of the year, and the blooms are abundant on a slowly-grown plant. In habit it is inclined to be bushy,

but unless pains be taken it will soon get ill-shaped : the outline should be formed while it is young, and the plant must be checked when it is too luxuriant. Thus, if any branches are becoming too vigorous, take off their ends, to throw strength into the rest of the plant. The soil should be half loam and half peat, with a sixth part sand. The slower the growth is made, so that it be healthy, the better and the more abundant will be the bloom. *E. Bojeri* is similar, but smaller, and requires precisely similar treatment. *E. fulgens* is totally different in habit, having long, slender, thornless stems, and altogether a light and elegant structure. The branches produce bright-looking lance-shaped leaves, and towards their upper extremities bear a profusion of brilliant scarlet floral organs of circular outline, consisting of five rounded bracts, placed like the petals of an ordinary flower. Being very milky, old plants are apt to die back when cut, unless kept very dry until they renew their growth. Cuttings strike readily with bottom heat in sand. As soon as rooted they should be potted into three-inch pots. When they start into growth take out the top, or heart : this will encourage lateral shoots, which, as soon as they have grown two inches, may be topped in a similar manner, and the other shoots being produced, a good bushy plant will be formed, which must then be shifted occasionally as it fills the pot. Longish shoots will be produced, which will in due time bear flowers all along their upper half, and may be trained or disposed in any way that may be preferred. The best plans, however, are to train spirally around a cylinder-shaped trellis, or, commencing with an upright, to train downwards over a balloon-shaped trellis.

EURYBIA. [Compositæ.] Greenhouse or half-hardy evergreen shrubs, many of them with neat foliage, and showy from the number of their flower-heads. Soil, sandy loam and leaf-mould. Propagated by cuttings.

EURYCLES. [Amaryllidaceæ.] Pretty greenhouse bulb. Soil, light mellow loam, with one-fourth rotten cowdung and one-eighth sand. Increased usually by offsets. The bulbs require rest in winter. *E. sylvestris* and *E. nervosa* require stove heat.

EUSTOMA. [Gentianaceæ.] Handsome greenhouse biennials, requiring particular cultivation. They must be grown

in a warm greenhouse, or even a cool part of the stove is more congenial to them in their earlier stages of growth. The plants are raised about May, and nursed through the autumn and winter in a cool stove, being shifted and topped to impart strength and bushiness. In spring they require to have a good shift or two into very rich open soil, composed of loam, peat, burnt clay, and decayed cowdung, equal parts, with sand added; they are then to be put into a brisk moist heat, in which they grow freely: they must, however, have air enough to prevent their drawing. They are exceedingly impatient of an over-supply of water at every period of their growth. Unless the plants are well topped when young they are apt to run up tall and thin, and are then much less beautiful than when nicely branched. Propagated by seeds. Also called *Lisianthus*, *L. Russellianus* being the most popular.

EUSTREPHUS. [Liliaceæ.] Greenhouse evergreen twiners. Soil, sandy peat. Propagated by cuttings of the firm young shoots in sand under a bell-glass.

EUTAXIA. [Leguminosæ, § Papilionaceæ.] Pretty evergreen greenhouse shrubs, of the hard-wooded section: they require similar treatment to *Dillwynia*, *Chorozema*, &c. Soil, sandy peat and one-third loam. Propagated by cuttings in sand under a bell-glass.

EUTHALES. [Goodeniaceæ.] Showy greenhouse herbaceous perennials, with curiously-constructed flowers. Soil, peat and loam, equal parts. Propagated by cuttings of the young firm shoots in a gentle heat.

EUTOCA. [Hydrophyllaceæ.] Hardy annual plants, of easy culture. Sow in March on a slight hotbed for transplantation, and in April in the open borders.

EVENING PRIMROSE. See **ŒNOTHERA**.

EVERLASTING FLOWER. See **GNAPHALIUM**, **APHELEXIS**, **PHENOCOMA**, **HELICHRYSUM**, &c.

EXOgonium. [Convolvulaceæ.] A division of the old family *Ipomœa*. *E. purga*, a very handsome slender climber, bearing rosy-purplish blossoms through the autumn months, is the source of the drug *jalap*. The plant has a fleshy root, which is very liable to decay in winter if kept too damp. The best place to keep the root is in a cool part of the greenhouse in the soil, which should be nearly, but not quite dry.

In the spring the crown may be excited slowly in a greenhouse or close frame; but as the summer draws on it will grow freely enough in the open air, where it should have a branchy stake or a trellis six or eight feet high. It may be kept in a pot trained around stakes cylinder fashion, and may be increased by cuttings. The flowers of this kind are less funnel-shaped than is usual among the plants of this order. *E. filiforme*, flowers purple. *E. repandum* flowers red.

FABIANA. [Solanaceæ.] A half-hardy evergreen shrub, with twiggy branches, and white, tubular, or rather club-shaped flowers. It is a pretty plant to place against a sheltered wall; but a duplicate should be potted, and kept during winter in a cool greenhouse in case of severe frost. Sandy compost, containing a third part of peat earth. Increased by cuttings, planted in sand in a gentle heat. The best is *F. imbricata*, white.

FAIRY ROSE. See *ROSA LAWRENCEANA*

FAN PALM. See *CORYPHA*.

FEATHER GRASS. See *STIPA*.

FEDIA. [Valerianaceæ.] Hardy annuals, one or two of which are pretty objects. The best is *F. graciliflora*. Sown in pots about March, and planted out subsequently, the plants bloom in June; but if sown in the open ground in April they bloom in July, in either case continuing in flower for some time in succession. Planted moderately thick, this *Fedia* forms a good bed plant. Light rich garden soil.

FELICIA. [Compositæ.] A small genus, containing a neat dwarf half-hardy annual. Soil, rich light garden mould. Increased by seeds. Sow in March in pots in a frame, and in April in the borders. It is known as *Aster tenellus*.

FENNEL FLOWER. See *NIGELLA*.

FERRARIA. [Iridaceæ.] Dwarf greenhouse bulb tubers, rather curious than beautiful. Soil, sandy loam and peat, equal parts. Increased by offsets or seeds. The tubers should be kept dry after the leaves have decayed.

FERNS. See under the several heads of *ADIANTUM*, *ASPLENIUM*, *ASPIDIUM*, *BLECHNUM*, *CHEILANTHES*, *GYMNOGRAMMA*, *POLYPODIUM*, *PTERIS*, *POLYSTICHUM*, *SCOLOPENDRIUM*, *DAVALLIA*, *LASTREA*, *LYCOPodium*, *SELANGINELLA*, &c.

FEVERFEW. See PYRETHRUM.

FICUS. FIG TREE [Moraceæ.] A large family of evergreen shrubs, mostly requiring stove temperature. Two or three species, however, will grow in a greenhouse, and are desirable evergreens of the easiest culture, rooting from cuttings planted in any sandy soil, and placed in a frame, and growing freely in a compost of mixed loam and peat. The most interesting for this purpose are *F. elastica*, which has very large and thick elliptical leaves, and should be kept as warm as possible; and *F. repens*, a small, ivy-habited, creeping, rooting-stemmed species, with leaves almost heart-shaped. These are both good plants for window culture, especially the former, which has a noble aspect; and, being one of the plants whose milky juice forms India-rubber, is called the *India-rubber tree*. There are no conspicuous flowers.

FIG MARIGOLD. See MESEMBRYANTHEMUM.

FILM FERN. See HYMENOPHYLLUM.

FIR. See PINUS, ABIES, PICEA, &c

FIRE LILY. See PYROLIRION.

FLAX. See LINUM.

FLOWER-DE-LUCE. See IRIS.

FLOWERING RUSH. See BUTOMUS.

FORGET-ME-NOT. See MYOSOTIS PALUSTRIS.

FORSYTHIA. [Oleaceæ.] Beautiful hardy deciduous shrubs. Soil, sandy loam. Propagated by layers or cuttings. *F. viridissima* is a valuable shrub for early forcing and an ornamental wall, but from its early blooming habit it requires to be in a sheltered position, or its blossoms become disfigured.

FORTUNÆA. [Juglandaceæ.] A half-hardy deciduous shrub, with the aspect of a Sumach. Common loamy soil. Increased by seeds.

FOXGLOVE. See DIGITALIS.

FRANCISCEA. [Scrophulariaceæ.] Very ornamental stove shrubs, requiring to be grown in a rough turfy compost of three parts peat to one part loam. They are raised from cuttings planted in sand under bell-glasses in a moderate heat. The cuttings, when rooted, must be potted into small pots in compost rather more sandy than that used for

established plants. They require to be kept in a moist stove temperature while growing, and should be rested by placing them in a drier and somewhat cooler temperature after each growth is completed, the pots being changed for larger ones as often as the roots become thick around the ball of earth. The larger plants flower freely, and should be slightly pruned in before they are excited to renew their growth. This keeps them within bounds and of neat form. The flowers of all, or nearly all the species open purple and change paler, becoming almost white, and are often highly odoriferous. *F. acuminata*, purple; *F. eximia*, violet; *F. hydrangeæformis*, purple; *F. latifolia*, purple; *F. uniflora*, purple, are the best.

FRANCOA. [Francoaceæ.] Herbaceous frame plants, with showy spikes of flowers. They are best raised from seeds sown in July in light soil, the pots being kept in a cool frame. The young plants are to be potted singly, and kept in rather small pots through the winter, unless they can be put on a greenhouse shelf, where they would continue growing. In spring they must be shifted into larger pots, as the previous ones become filled with roots; and about July and August they come into flower, and are very pretty either bloomed in pots or planted out in the flower-borders about May, when there is no further danger from frost. They do not require heat; the protection of a frame is sufficient for them if they are not kept too damp at the root. Sometimes they will survive the winter exposed, especially if in a dry situation or sheltered against wet.

FRAXINELLA. See DICTAMNUS.

FRAXINUS. ASH. [Oleaceæ.] Hardy deciduous trees. Common soil. The Weeping Ash (*F. excelsior pendula*) is a popular tree; the others are of more importance as timber trees than in gardens or pleasure-grounds. It is propagated by grafting standard high on the common Ash.

FRENCH MARIGOLD. See TAGETES PATULA.

FRINGE TREE. See CHIONANTHUS.

FRITILLARIA. FRITILLARY. [Liliaceæ.] A genus of hardy bulbs of easy culture, propagated without difficulty by means of offsets. The bulbs should be planted in sandy, loamy soil: when taken up for transplanting it should be about August. All the species propagate by offsets, and

grow freely in the open ground without protection. They mostly flower between March and May, and are thus very useful in gardens as spring flowers. The most stately species is the Crown Imperial, which bears a whorl of drooping flowers, surmounted by a tuft or crown of leaves. The smaller species bear one or two drooping cup-shaped flowers. The bulbs of the Fritillarias are scaly, and of a soft texture, like those of Lilies; consequently they must not be dried by being left long exposed at the period of replanting.

FUCHSIA. [Onagraceæ.] A beautiful genus of greenhouse shrubs, from which a race of still more varied and beautiful varieties has been produced by the skill of the florist. The culture in all cases is very similar, making some allowance for the natural differences in the size of the species. They are raised very readily from cuttings planted in sandy soil, and placed in a moist warm atmosphere, such as that of a hotbed. The cuttings should be the little shoots produced in spring, when two or three inches long. To obtain these put the old plants in a warm temperature early in February, and take the cuttings as early as they can be obtained. When rooted pot them singly into three-inch pots, and keep them in the hotbed near the glass until they begin to grow freely, then give them more air and less heat: a hotbed of nearly spent dung will be best for them, so that they may be kept in a tepid moist atmosphere. By degrees they must have more air until, about May, they are taken to a warm greenhouse, and after that they may receive greenhouse treatment. They must be potted into larger pots as fast as the roots multiply, and the soil used should be one-half mellow loam, one-fourth well-decomposed dung, and one-fourth of leaf-mould, with about an eighth part of the whole sand. The best form to grow a young plant is the pyramidal. Train up a leading shoot, and if the plant is supplied with pot room and plenty of light, and has not heat enough to draw it out weak, it will form side-shoots in sufficient abundance to produce a handsome outline, the branches being allowed to take their own pendent form. After flowering is over keep them nearly dry in any place beyond the reach of frost. In March prune back all the side-shoots, and leave only the upright stem; turn them out of the pots, shake

away the soil, and prune back the roots; then pot them into pots as small as will hold their roots. Place them in a moist temperature, rather warmer than a greenhouse (about 55°), and as the young shoots are produced thin away the superfluous ones, leaving enough to furnish the stem completely with pendent lateral shoots. Twelve-inch pots are large enough to bloom very large Fuchsias in. Some of the stiffer-growing varieties, including several of the foreign species, are not adapted for pyramidal training: these must be shaped into a neat spreading bush. Fuchsia seeds should be sown in March in a warm frame, and the plants nursed on like cuttings, only, as the object of raising seedlings is to obtain improved sorts, they should not be shifted beyond a five-inch pot until the first blooms indicate if they are worth better treatment. They will do this in the early part of the summer. Cultivators are too apt to grow Fuchsias in very rich compost, and to over-excite them with heat, in order to increase their size; but the consequence is that the beauty and symmetry of the plants are destroyed. The plants are much more compact and of better form if they are grown entirely without artificial heat; they should, moreover, be grown near the glass, and turned round whenever they lean towards the light. Under this treatment they will not grow rapidly, because they will have nothing to excite them; but they will be close, well furnished with leaves, short-jointed, and handsome in form. Fuchsias may be grown in a cold frame as well as a greenhouse all the summer; or a great part of the time they may be in the open air, in any part sheltered from the wind. The garden sorts are so diversified that it is useless to particularise them: those that are best one year are usually surpassed the following by more novel varieties. Many of the original species of Fuchsia are very distinct and showy plants, and present many variations of habit and appearance from those raised in gardens.

FUMARIA. See DIELYTRA.

FUNKIA. [Liliaceæ.] Very pretty hardy herbaceous perennials. They grow freely in any light common soil, and require no particular culture; but they must have a warm dryish situation to induce them to bloom freely. Increased by division of the roots. The best is *F. grandiflora*.

FURZE. See ULEX.

GAGEA. [Liliaceæ.] Hardy bulbs, closely related to Ornithogalum. Light sandy soil. Increased by offsets.

GAILLARDIA. [Compositæ.] Showy hardy and half-hardy perennials. Soil, sandy loam or light garden soil. Increased by division. *G. picta*, a soft-stemmed plant, used for flower-garden decoration, requires protection from frost in a dry frame during winter, and is raised from seeds or cuttings in autumn for planting out in the following May.

GALANTHUS. SNOWDROP. [Amaryllidaceæ.] Well-known hardy bulbs, dwarf, pretty, and very general favourites, partly, perhaps, from the season at which they appear, as the heralds of spring. The bulbs require planting in October in common soil, and should be left undisturbed for several years; they then form thick patches, and are more showy when in flower. They should be planted in patches instead of single rows along the edging of borders. There are single and double.

GALAXIA. [Iridaceæ.] Greenhouse bulbs. Soil, sandy peat, with one-third fibry loam. Propagated by offsets. The bulbs require to be rested in winter.

GALEGA. GOAT'S RUE. [Leguminosæ, § Papilionaceæ.] Large-growing hardy perennials. Common soil. Increased by division or by seeds.

GARDENIA. [Cinchonaceæ.] A most desirable family of evergreen stove or greenhouse shrubs, containing many noble species. We shall confine ourselves, however, to the popular species, commonly known as *Cape Jasmines*, which are grown abundantly for the London market. *G. radicans* grows eighteen inches high, but it may be produced with bloom on it in the smallest-sized pots. It may be grown to perfection in a common hotbed; indeed, no place suits it better. Take cuttings about three inches long of the points of the half-ripe shoots as early in the season as they can be had; plant them firmly in pots of very sandy loam and peat, having about an inch of sand on the top, and let them be well watered, to settle the sand and soil close to their stems. Place the cutting-pots in the shady part of a hotbed, and water sufficiently often to keep the sand moist. When they are rooted pot them separately in three-inch pots, using for

compost equal parts of loam and turfy peat made rather sandy, and putting in the bottom of the pots broken crocks an inch in depth for drainage; water them, and place them again in the dung-bed near the glass. When they fill the pots with roots they must be changed to five-inch pots, and returned to the dung-bed, which will decline in heat below as the summer advances, but will still preserve a moist warmth, which is very congenial to these plants. They must be shaded from the violent heat of the sun. If there should be sudden diminution of heat and unhealthy change in the bed, the plants are very likely to be attacked with the red spider or some other pest; but if the heat be kept regular and moist, and the plants are not neglected, there will be healthy growth and rapid progress. As summer advances they may have a good deal more air, particularly while the sun is out, but great attention must be paid to watering, a little neglect of which would be mischievous. The pots must be changed for larger as the roots become numerous. In September the plants must be removed to a warm part of the greenhouse, or to an intermediate house, and kept rather dry and at rest during winter. As early in the year as may be required they may be again placed in a hotbed, or in a moist warm house, and will soon show their beautiful white blooms. When they begin to open the plants should be removed to the conservatory, greenhouse, or dwelling-house, that their fragrance may be enjoyed. After the bloom is over the plants may be put for a short time in the greenhouse to rest; but as soon as they begin to grow, and as early as practicable, prune them, reduce the soil and roots somewhat, repot them, and start them again into rapid growth in the hotbed, for that is the best climate for them, and next to it the moist atmosphere of an orchid house. All the varieties are pretty, but *G. radicans* and *G. florida* are the favourites. The most vigorous young shoots may be topped once when about two joints long, to cause the production of a greater number of shoots, and consequently of blooms, which should come at the points of nearly all the shoots. *G. florida* and its varieties, *Fortuni* and *intermedia*, are larger-growing and finer plants, and require the same treatment. The double-flowered varieties of both species are to be preferred.

GARDOQUIA. [Labiatae.] Greenhouse evergreen subshrubs, remarkable for the abundance of their flowers, which are tubular, and open all along the branches. Soil, a light mixture of peat, loam, and sand. Cuttings strike freely in sand under a bell-glass in a moist heat. *G. Hookeri*—which we retain here on account of its being popularly known by this name, though it is more correctly *Calamintha coccinea*—is by far the handsomest of them. The cuttings, when rooted, should be potted into three-inch pots, in a sandy mixture of three parts peat to one of loam: they should be grown near the glass in the greenhouse, with a liberal supply of water; but the drainage must be perfect, for stagnant moisture would soon destroy them. As they fill their pots with roots they must be changed to those a size larger; and until a sufficiently large plant is formed all the young shoots, when two inches long, must have their points nipped out: this will make them come bushy. When they have grown so as to fill a thirty-two sized pot they will flower abundantly.

GARRYA. [Garryaceae.] One of the most graceful of evergreen shrubs. Its chief beauty, however, consists in its long catkins, which in the winter hang down in elegant tassels from the ends of all the shoots: these catkins, which, in fact, consist of the male bloom, are of a greenish-yellow colour. It is hardy, grows shrubby, and is manageable under the knife, so that it may be kept bushy and short, or allowed to grow more pyramidal and elegant. It prefers a loamy soil, not too adhesive, and is propagated best by layers, which, if put down one autumn, will secure plants by the next. The layers should be cut off in autumn and potted, placed in a cold frame to establish themselves, and may then at any time be planted out where they may be seen to advantage, for they would be lost in a crowd of brighter shrubs. They may also be increased by cuttings planted under hand-glasses towards the end of summer. One of its claims to attention is that it blooms while very small, and looks very well in a pot. Its blooms, or rather catkins, remain for some time in perfection. *G. elliptica*, *G. laurifolia*, and *G. macrophylla* are the best.

GASTERIA. [Liliaceae.] Greenhouse succulent perennials, forming one of the divisions of the well-known genus Aloe. Soil, sandy loam, well drained. Increased readily by

suckers. The flowers are mostly red or scarlet, and produced in June and July. A collection of them with other succulents is very interesting, both on account of their handsome flowers and curious fleshy leaves.

GASTROLOBIUM. [Leguminosæ, § Papilionaceæ.] Beautiful evergreen greenhouse shrubs. They require the same treatment as *Chorozema*, *Dillwynia*, &c. Soil, three parts turfy peat to one part loam, with a sixth of sand. Increased by cuttings in sand under a bell-glass.

GAULTHERIA. [Ericaceæ.] Pretty dwarf procumbent hardy and greenhouse evergreen shrubs, requiring moist peaty soil. Increased by layers and seeds. *G. procumbens*, hardy trailing evergreen shrub, and *G. Shallon*, hardy evergreen shrub, flower white.

GAURA. [Onagraceæ.] Showy hardy plants, mostly biennials. Soil, sandy loam. Increased by seeds. *G. Lindheimeriana* is a very elegantly branched free-blooming plant, and, though perennial, is perhaps best treated as a biennial; it blooms freely, however, the first year from the seed, if sown in March with the half-hardy annuals. Its hardiness is yet scarcely tested.

GAY-BINE. See **PHARBITIS**.

GAYLUSSACIA. [Vacciniaceæ.] Greenhouse evergreen shrubs. Soil, turfy peat. Increased by layers.

GAZANIA. [Compositæ.] Greenhouse herbaceous plants, producing large and very showy yellow or orange-coloured composite flowers. Soil, loam, leaf-mould, and sand. Increased by division or by cuttings. They require little care beyond ordinary routine greenhouse management, and to be occasionally repotted as they become thickly rooted. *G. uniflora* is of a different habit from the rest, producing numerous branching stems, and forms a good bedding-out plant for the flower garden in summer if planted in a dryish situation. Cuttings struck about August in one season form good blooming plants for the next summer: they should be frequently stopped while young.

GEISSORHIZA. **TILE ROOT.** [Iridaceæ.] Greenhouse or half-hardy bulbs, related to *Ixia*, and requiring similar treatment. Soil, sandy peat two-thirds to one-third loam. Increased by offsets.

GELASINE. [Iridaceæ.] A pretty half-hardy bulb. Soil, sandy loam. Increased by offsets. The best is *G. azurea*, blue.

GENISTA. [Leguminosæ, § Papilionaceæ.] A genus of shrubs, of which most of the species are hardy. These succeed well in ordinary garden soil, mostly preferring dryish situations, and are best increased by seeds. The hardy trailing species are admirable plants for rockwork. The greenhouse kinds are very ornamental and free-blooming plants. They are propagated readily by cuttings planted in sandy soil, and placed in a frame. The plants should be potted in light foamy compost, and if moderately shifted, and the young shoots frequently topped, they soon make good bushy plants. The flowers of some of these are highly fragrant.

GENTIANA. **GENTIAN.** [Gentianaceæ.] Beautiful hardy herbaceous plants. *G. acaulis*, sometimes called *Gentianella*, has been often chosen as an edging for flower-beds and borders: a light, but not poor soil is required for it, and when once planted it does not like to be disturbed; consequently the edgings are allowed to grow wide, and it is then that it begins to bloom profusely. The plant will not flower till it has begun to grow well. The soil should be prepared for the plants by forking in some peat earth with the ordinary soil; they may then be planted and watered to settle the earth about their roots. The brilliant blue of their bell-like flowers, turned up, however, instead of hanging down, is so intense that they form a most striking object anywhere. The whole plant, when in flower, is not four inches high; yet the blossom is almost as long as that of a Canterbury Bell. It is an evergreen, and when not in flower is by no means a bad edging. Many of the other species are most beautiful border flowers. They should be planted in good rich soil, and most of them prefer a considerable proportion of peat earth. They are propagated readily by dividing the plant in autumn or spring. The hardy annual and biennial species are of much less horticultural importance, and a new one, recently added, is said to surpass all the familiar varieties.

GERANIUM. **CRANE'S BILL.** [Geraniaceæ.] Ornamental herbaceous plants. Common garden soil. Increased readily by division or by seeds. See also **PELARGONIUM.**

GERMANDER. See TEUCRIUM.

GESNERA. [Gesneraceæ.] A showy genus of stove perennials, many of which have tuberous roots, and some are shrubby. Soil, turfy peat earth, leaf-mould, and fibry loam, with an eighth part sand. The tuberous kinds must have a pot suited to the size of the bulb. They require to be placed in a hotbed frame or in the stove, and must be grown near the light. As soon as the pot is filled by the fibres of the plant, and they begin to grow round its side, the plant must be shifted to a larger size. When first potted they must have no water; but as soon as they begin to grow water is to be moderately applied, and when they are in full growth they require to be liberally supplied. The plants should occupy a light part of the stove until the buds show for bloom, and when this is the case they should be shaded from the direct rays of the sun. When they have done flowering no more water is to be given, and the plants are placed away on a shelf to rest, and remain dry until the shoots make their appearance, when they are examined, and, if necessary, repotted. To propagate them take off some of the young shoots when about two inches long, and plant them in sandy peat, and place them under a bell-glass in a hotbed frame. When rooted pot off and shift as before, only young plants in which the tubers are hardly formed must not be dried so much as the old ones. This treatment is proper for the tuberous-rooted kinds, of which *G. bulbosa* and *G. zebrina* are desirable in the smallest collections. The latter has a scaly rhizome like *Achimenes*, and is propagated by fragments of that. They may be propagated, like *Gloxinias*, by cuttings of the leaves. To have a succession of bloom start some in January, others in February, and a third portion in March. *G. zebrina* is a beautiful winter-blooming plant started about August. The shrubby kinds are raised from cuttings, which are shifted on when rooted so as to form bushy plants, but are otherwise treated like the rest, except as to drying them when past blooming.

GETHYLLIS. [Amaryllidaceæ.] Interesting small greenhouse bulbs. Soil, sandy peat and loam. Increased by offsets.

GEUM. AVENS. [Rosaceæ.] Hardy perennials, some

ornamental. Soil, sandy loam. Propagated by division or by seeds. *G. pratense* and *G. grandiflorum* are the best.

GILIA. [Polemoniaceæ.] Favourite hardy annuals, with small cup-like, but very pretty simple flowers. There are several varieties, and but little to distinguish them one from the other save the different shades of colour. *G. tricolor* is the best for general purposes; it is neat, dwarf, and quiet. Being as hardy as most of the annuals, it may be sown in March, and again in April and May, where it is to bloom, and should not be too much crowded. It will bloom from June onwards in succession. It is not sufficiently bright or striking to be effective in geometrical gardens. It may also be sown in September in open dryish places; and, unless the winter is very severe, it will survive and give early bloom. *G. tricolor* is the favourite.

GILLENIA. [Rosaceæ.] Hardy herbaceous perennials. Peaty soil, rather moist. Propagated by division.

GLADIOLUS. CORN FLAG. [Iridaceæ.] Beautiful perennial plants, with bulb-tuberous roots. Some few are quite hardy, and the remainder are for the most part set down as greenhouse plants; but in fact they flower in the open air stronger and better than under any other mode of culture. They may be planted in the autumn six to eight inches deep in a warm border, and a few inches of litter, or some equivalent protection in the event of frost, given them for the winter. When grown in pots it is necessary to place them in frames during the winter season. Sandy loam and peat is the best compost; and in the beds or borders on which they are grown the soil ought to reach a foot or eighteen inches deep. After flowering they require no water. The roots multiply abundantly by offsets, which should be planted in nursery-beds; and after one year's growth the largest will be strong enough for flowering, the smaller ones being still kept in nursery-beds until they reach a flowering size. They may also be raised from seed, which should be sown in pans very thinly in February, and be placed in the greenhouse or frame, covered with a hand-glass. When the plants are up they must be cleaned from every weed, and watered occasionally; and the hand-glass may be removed, because, after the first three or four days, they want no more protection than the

greenhouse will give. When the leaves die down in autumn, the small bulbs must be carefully taken up, fresh pans provided with the proper soil, and the bulbs replaced an inch apart all over the surface, the bulbs being covered about an inch. They must be kept in the greenhouse until they come up again in the spring. Give water when they want refreshment, and keep clear of weeds until the foliage dies down again, when the bulbs may be taken up, and in November planted again three or four in a three-inch pot, and kept in the greenhouse. At the end of this season's growth they will be of a good size. In November they may be planted out of doors on a south border, covered with litter during the frosty months, and be left to themselves after the beginning of May, and in June and July they will most likely flower. After the first year they may, if more convenient, be planted in prepared beds in a sheltered part of the garden. There are many beautiful varieties and hybrids raised in gardens. The hardy sorts may be planted permanently in the borders, and require no further care. There are three divisions of the more tender sorts: the earliest blooming, as *G. blandus*, &c., may be planted in October; the intermediate sorts, as *G. ramosus*, &c., in December; and the later ones, as *G. Natalensis*, &c., in February or March. Any of them may be grown in good-sized pots, three or four bulbs in a pot; and if kept in a frame till they flower they make fine ornaments for greenhouses, conservatories, colonnades, &c. The garden varieties are endless, and many of them fine.

GLEICHENIA. [Polypodiaceæ.] Very elegant ferns, requiring the protection of a stove or greenhouse. But two or three species are in cultivation. Soil, sandy peat, with a little loam. Increased sparingly by division, or sometimes from the spores. The principal are *G. dicarpa* and *G. polypodioides*, both evergreens.

GLOBE AMARANTH. See **GOMPHRENA.**

GLOBE FLOWER. See **TROLLIUS.**

GLOBE THISTLE. See **ECHINOPS.**

GLOBULARIA. [Selaginaceæ.] Dwarf herbaceous plants, nearly or quite hardy. Soil, sandy loam and peat. Increased by cuttings of the young shoots under a hand-light in summer.

GLORIOSA. [Melanthaceæ.] Beautiful bulbous stove climbers, requiring to be kept dry when at rest, to be grown freely in a strong moist heat, and then ripened off after flowering, and kept dry till the following spring. The greenhouse kinds require a less moist atmosphere. Soil, turfy peat, fibry loam, leaf-soil, old cowdung, and sand in equal proportions. Increased by separating the bulbs at the time of repotting, which should be done annually about March, or by seeds. *G. superba* is the principal variety cultivated.

GLORY PEA. See CLIANTHUS.

GLOSSOCOMIA. [Campanulaceæ.] Hardy herbaceous perennials. Common soil. Increased by seeds or division.

GLOXINIA. [Gesneraceæ.] Stove bulbous-rooted perennials of dwarf habit, and with very showy and very abundant blossoms. They require to be repotted annually, using a compost of loam, dung, turfy peat, and sand in equal portions, and in pots scarcely broader than the width of the bulb. As the roots fill the pots they must be changed to larger, and the plants must be grown on the front shelves or tables of the stove in the full light, to prevent their being drawn up. They want considerable moisture while growing; but after the bloom has declined water should be gradually withheld, and the pots set back on the shelves, and remain undisturbed until growing time comes again, which will be indicated by the starting of the buds on the top of the bulbs. To propagate them take any of the supernumerary shoots from the bulb when they are an inch and a half long, and strike them in small pots under a bell-glass, after which they may be potted off and shifted till they bloom; or plants may be raised from the leaves planted as cuttings. To raise from seed sow in March; keep the pots in the stove till the plants are up; when large enough they may be pricked out three or four in a three-inch pot; and in due time pot them singly, and treat them like the older plants. The flowers are usually pendulous. The garden varieties eclipse the species.

GNIDIA. [Thymelaceæ.] Greenhouse evergreen shrubs of neat habit, but not producing very conspicuous flowers. They are raised from cuttings, treated like those of the Heath family, and require very similar general management. Soil,

turfy peat, mixed with a fourth part of light loam and a sixth part sand. *G. pinifolia* and *G. simplex* are the best.

GOAT'S RUE. See GALEGA.

GODETIA. [Onagraceæ.] Showy hardy annuals, nearly related to *Oenothera*. Sown in the open beds or borders in March and April, to flower in June, July, and August. As soon as the plants come up they should be thinned, for if crowded they grow weakly, and do not flower so well: six or eight plants may be left in a patch. If they are required early they may be sown in pots in March, to be forwarded in frames, and turned out in May: the pots must be kept, in this case, near the light, and beyond the reach of frost, which, while the plants were young and tender, would injure them. Several of the species are too much like others. When vigorous the plants remain some time in bloom.

GOLDEN ROD. See SOLIDAGO.

GOMPHOLOBIUM. [Leguminosæ, § Papilionaceæ.] Greenhouse evergreen shrubs, some of them climbers, and all among the most beautiful of greenhouse plants. The general treatment of *Chorozema*, *Dillwynia*, &c., is suitable to this genus. The climbing species, which, though shrubby, are of very slender growth, require to be carefully handled in training. To have a blaze of flowers the common plan of training them over a large flat shield-like trellis may be adopted; but a more elegant effect is produced by a somewhat careless style of training on a pillar or column-shaped trellis, such plants being also more convenient in a greenhouse, and harmonising better in their forms with the general contour of the plants around them, than is the case with flat-sided trellises of any design. Very perfect drainage and very careful watering are indispensable to the healthiness of *Gompholobiums*. Soil, light turf peat, with one-third mellow loam and an eighth part sand. Increased by cuttings in sand under a bell-glass, or by seeds, which are not unfrequently produced. There are many varieties.

GOMPHRENA. GLOBE AMARANTH. [Amaranthaceæ.] Stove plants, some perennial and others annual. The popular kind is *G. globosa*, familiarly known as the *Globe Amaranth*. It is an annual, and has long been raised in company with Cockscombs, Egg plants, and Balsams, and regarded as one

of the principal tender annuals. The seeds should be sown in February or March, not too thickly, and placed in a hotbed or in a hothouse. As soon as the young plants are large enough to be handled they may be transplanted four or five in a three-inch pot, where they may grow until large enough to be potted singly into pots of the same size. They are best grown close to the glass in a hotbed of moderate warmth; but after they are somewhat advanced, and the weather becomes warm, they may be grown in a greenhouse kept rather close and damp. The young plants must be shifted into larger pots as often as the roots make their appearance through the bottom of the pots, until at last they will be a foot high, nearly as much through, and covered, about August or earlier, with their clover-like heads of flowers. They seed freely; and the flowers continue a long time after they are gathered and dried, the petals being chaffy or scaly, like those of Everlasting flowers. *G. pulchella*, another pretty annual kind, though not as yet very commonly grown, deserves to be so.

GONIOPTERIS. [Polypodiaceæ.] A genus of ferns, consisting for the most part of stove species. Soil, peat, loam, and sand. Increased by division. *G. Fosteri* is the best.

GOODENIA. [Goodeniaceæ.] Greenhouse plants, with rather pretty flowers. Soil, peat and loam, with sand. Increased by cuttings in sand placed in a hotbed, or by seeds.

GOODIA. [Leguminosæ, § Papilionaceæ.] Greenhouse evergreen shrubs. Soil, peat and loam, with sand. Increased by cuttings in sand placed in a hotbed.

GOODYERA. [Orchidaceæ.] A genus of perennial herbs, two or three of which are hardy, requiring to be grown in spongy, peaty soil, in a shady situation not affected by drought. The most interesting is *G. discolor*, a stove species, which bears very ornamental spikes of white flowers during winter, and is therefore desirable on account of its blossoms, as well as for its velvety foliage, which is of a very dark green on the upper, and dull red on the lower surface. It is nearly related to *Anæctochilus*, but more easily managed, requiring to be potted in loose turfy peat and potsherds, and to be kept in a damp hot atmosphere. It is propagated by division.

GORDONIA. [Ternströmiaceæ.] Fine deciduous shrubs, which are nearly hardy, requiring peat soil, and a damp but sheltered situation. *G. lasianthus* is a suitable plant for a cold conservatory. *G. Javanica* requires a warm greenhouse. Increased by cuttings of the young shoots in sand under a bell-glass. *G. pubescens* is a favourite.

GOSSYPIUM. COTTON TREE. [Malvaceæ.] Stove plants. The common Cotton tree, *G. herbaceum*, is a stove annual, requiring similar treatment to the Balsam.

GRAMMANTHES. [Crassulaceæ.] Pretty little greenhouse annuals. Sandy loam, finely broken charcoal, and leaf-mould, equal parts, will be a proper soil. Sow thinly in five inch pots, in which they are to flower, being thinned out moderately if they come up too near each other.

GRAMMITIS. [Polypodiaceæ.] Interesting simple-leaved dwarf ferns. Soil, peat and loam. Increased by division. They are mostly tropical plants.

GRAPE HYACINTH. See **MUSCARI.**

GREEK VALERIAN. See **POLEMONIUM.**

GREVILLEA. [Proteaceæ.] A large genus of greenhouse shrubs, most of the species interesting evergreens, but not possessing a gaudy character. They are increased by cuttings planted in sand, and placed under bell-glasses on a shady shelf in a greenhouse, or in a frame. The plants should be grown in equal parts loam and peat earth of a turfy texture, the compost being made rather sandy for the younger ones, which are to be at first potted into small pots, and shifted into larger ones only when they become pretty well filled with roots. The plants should have the tips of the young shoots removed when an inch or two long, until they have acquired some size, under which treatment they will be bushy and well furnished with branches quite down to the pots. The flowers are of very curious structure.

GRIFFINIA. [Amaryllidaceæ.] Pretty stove bulbs. The general treatment should be that given to the stove species of Amaryllis. Soil, peat, loam, leaf-mould, and sand. Propagated by offsets. *G. hyacinthina*, one foot high, is good.

GRINDELIA. [Compositæ.] Greenhouse or half-hardy plants. Soil, peat and loam. Increased, the sub-shrubby kinds by cuttings, the others by division or by seeds.

GUELDER ROSE. See VIBURNUM.

GUERNSEY LILY. See NERINE SARNIENSIS.

GUIZOTIA. [Compositæ.] Hardy annual. Cultivated in Southern Europe as an oil plant. Soil, light rich loam. Increased by seeds. *G. oleifera* is the only one cultivated.

GUM TREE. See EUCALYPTUS.

GUZMANNIA. [Bromeliaceæ.] A showy stove perennial, allied to *Æchmea* and *Vriesia*. This plant has long narrow leaves, from the centre of which grows an erect spike, terminated by broad overlapping bracts, which at the top are scarlet, and below are green striped with brown, the flowers, which the bracts almost conceal, being white. The treatment recommended for *Æchmea* will suit this also. All the plants of this race should have a period of repose answering to winter, in which they should be kept comparatively dry and cool; their growth is then much more vigorous when heat and moisture are increased in spring. *G. tricolor* is one foot high, and flowers green, red, and white.

GYMNADENIA. [Orchidaceæ.] Hardy tuber-bearing perennials, with pretty flowers. Soil, chalky loam. Increased sparingly by division of the roots or by seeds. All more curious than beautiful.

GYMNOGRAMMA. [Polypodiaceæ.] Beautiful ferns, for the most part requiring stove temperature, and comprising the species whose leaves, covered beneath with a white or a yellow powdery matter, have obtained them the name of the Gold and Silver Ferns. Soil, peat, loam, and sand. Increased by division, or very readily by the spores or seeds scattered over a damp rough surface of peat earth.

GYNERIUM ARGENTEUM. [Gramineæ.] PAMPAS GRASS. Highly ornamental, hardy, and of the easiest culture.

GYPSOCALLIS. [Ericaceæ.] Beautiful little evergreen hardy shrubs, formerly known as *Ersias*. They require to be planted in a bed of peat earth, with *Rhododendrons*, *Ledums*, &c., and should occupy the outer parts. If the situation is rather moist it is preferable, otherwise they require to be abundantly watered in spring *while making their new growth*. Increased by layers.

GYPSOPHILA. [Caryophyllaceæ.] Hardy herbaceous

perennials, with one or two exceptions. Some of them are pretty, producing a number of small flowers, usually white, on much-branched stems. All the smaller species of the genus, which is rather extensive, are well adapted for rock-work. They like a dryish soil, especially if intermixed with calcareous matter, or old lime, or brick rubbish. They must be propagated by seeds or cuttings, their tap-rooted habit not generally admitting of safe increase by division.

HABENARIA. [Orchidaceæ.] A genus of herbaceous perennials, containing one or two hardy species. Soil, moist peat. Propagated by division.

HABRANTHUS. [Amaryllidaceæ.] Greenhouse bulbs with showy flowers. Soil, sandy loam, with one-third peat. Propagated by offsets or by seeds. They flower without the leaves after a season of rest.

HABROTHAMNUS. [Solanaceæ.] Elegant greenhouse shrubs of large growth. They are very showy when planted out in a cool conservatory, either in borders or against pillars or the back wall; but in pots they are incommensurable, requiring to be grown very large in order to obtain a free development of flowers. They may be grown on conservative walls if the branches and roots are sheltered from wet in winter, and the soil is thoroughly drained, and not too rich, so as to check exuberant growth; but their habit under such treatment would be somewhat changed. Soil, rich loam and peat. Propagated very readily by cuttings. *H. purpureus*, *H. elegans*, and *H. fasciculatus* are good.

HACQUETIA. [Umbelliferæ.] A small hardy herbaceous perennial. Soil, sandy loam and peat. Increased by division. *H. epipactis*, flowers yellow, in April.

HÆMADICTYON. [Apocynaceæ.] Handsome evergreen stove twining shrubs, allied to *Echites*. Soil, fibry peat and loam, with a sixth part sand. Propagated by cuttings in sand in a hotbed, under a bell-glass. *H. venosum* has beautiful red-veined foliage. *H. suberectum* and *H. venosum* flower yellow, in July.

HÆMANTHUS. BLOOD FLOWER. [Amaryllidaceæ.] Greenhouse bulbous plants, most of them not very showy. Soil, sandy loam, with an equal portion of peat, old cowdung, and sand. Increased by offsets. There are numerous species

from the Cape of Good Hope. *H. inisgnis* is a very showy plant.

HAKEA. [Proteaceæ.] Greenhouse evergreen shrubs, with inconspicuous flowers. Soil, turfy peat and loam, equal parts, with a sixth part sand. Increased by cuttings in sand under a bell-glass. There are numerous species, all from New Holland.

HARDENBERGIA. [Leguminosæ, § Papilionaceæ.] Greenhouse evergreen twiners of great beauty, closely allied to *Kennedya*. They are proper for training over the pillars and rafters of the house. Soil, turfy peat, with one-third loam, and a liberal addition of sand. Increased by cuttings in sand placed in a hotbed, or by seeds, which are frequently produced.

HARE'S EAR. See **BUPLEURUM**.

HART'S-TONGUE FERN. See **SCOLOPENDRIUM**.

HAWORTHIA. [Liliaceæ.] Interesting dwarf greenhouse succulent-leaved perennials, closely related to *Aloes*. Soil, sandy loam, well drained. Increased by division. There are many species, but none very striking.

HAYLOCKIA. [Amaryllidaceæ.] Interesting small bulbous plants, requiring greenhouse or frame protection. Soil, sandy loam, with one-fourth peat or leaf-mould. Increased by offsets. *H. pusilla* is a greenhouse bulb, flowers pale yellow, in September.

HEATH. See **ERICA**.

HEBENSTREITIA. [Selaginaceæ.] Small-flowered greenhouse sub-shrubs. Soil, sandy loam and peat. Increased by cuttings in sand in a hotbed, or by seeds.

HEDERA. **Ivy.** [Araliaceæ.] A well-known hardy evergreen climber, of which there are several varieties. The tender Ivies are of little interest. Common garden soil suits the Ivy, but it grows quicker if it be rich and deep. Increased by cuttings in autumn in a moist sandy soil. The best of the varieties for general purposes are the *Irish* and *H. Rægnieriana*, the latter with large heart-shaped leaves.

HEDGEHOG CACTUS. See **ECHINOCACTUS**

HEDGE MUSTARD. See **ERYSIMUM**.

HEDGE NETTLE. See **STACHYS**.

HEDYCHIUM. [Zingiberaceæ.] Beautiful stove herba-

ceous perennials, growing five or six feet high, and bearing white, orange, scarlet, or yellow flowers. Soil, turfy loam, peat, old dung, in equal proportions, with a liberal allowance of coarse sharp sand. The plants should be fresh potted in January or February, having been previously rested by being kept drier and cool during winter. Turn out the plants, take off the suckers, and repot the roots in appropriate-sized pots, not larger than necessary, in order that when the first pot is filled with roots it may be exchanged for one of larger size. They require through the growing season a liberal supply of water. When the colours are showing they should be put in the coolest part of the stove, that they may be prepared for removal to the conservatory. From the time the bloom decays they should be allowed to rest, receiving but little water, they would, in fact, do in the greenhouse until the repotting time. The period of blooming is some time during the latter part of the summer, according to the time when they are excited, and the rapidity with which they are grown. There are numerous species, but the most popular are *H. angustifolium*, scarlet, *H. aurantiacum*, orange; *H. coronarium*, white; *H. flavescens*, yellowish, *H. Gardnerianum*, yellow; and *H. speciosum*, pale yellow.

HEDYSARUM [Leguminosæ, § Papilionaceæ.] Hardy herbaceous plants, including annuals, biennials, and perennials. Common garden soil. Increased by seeds or division.

HEIMIA. [Lythraceæ.] Greenhouse deciduous shrubs. Soil, sandy loam and peat. Increased freely by cuttings in heat.

HELIANTHEMUM. **SUN ROSE**. [Cistaceæ.] Small evergreen shrubs, immediately related to *Cistus*, mostly trailing plants, and among the prettiest ornaments of rockwork. The genus comprises more than a hundred species and varieties, some requiring a frame, but the greater part nearly hardy: a few are hardy annuals. They grow chiefly upon rocks and rockwork, and therefore require hard dry ground. The poorer the loam in which the plants are grown the better: a mixture of sandy loam with a little peat is suitable. They are best on rockwork and on banks. The annuals may be sown thinly on the ground of the common border. The shrubby kinds are raised from cuttings, and want but little

care except so far as potting the tender and planting out the hardier sorts. A few plants should be kept in small pots for facility of preservation during the winter, when the exposed plants are sometimes killed. The few that are necessary in a garden should be selected while in bloom, for there is little difference between many of them. The majority have yellow flowers; a few are white or red, or some shade between red and yellow.

HELIANTHUS. SUNFLOWER. [Compositæ.] There are two kinds of Sunflower worth cultivating; the double-flowered perennial kind (*H. multiflorus*), which grows in common soil, and is increased by division; and the annual (*H. annuus*), of which there are tall, dwarf, and what are called single and double-flowered varieties. This almost discarded but ancient ornament of British gardens ought to be cultivated for its usefulness, if not for its beauty; but even in respect of this latter quality there are many occupants of large borders far less entitled to notice. The seed of the Sunflower is full of vegetable oil, which may be pressed out with less labour than that from rape or linseed; and the oil-cake is fattening to cattle. The seed without crushing is highly nourishing to poultry, and is therefore of service in the farmyard. The plant is very prolific, and probably yields more seed than anything that would occupy the same room. It is, however, desirable that the seed should ripen early, for which object the young plants should be raised on a gentle hotbed in April, where they should be allowed to grow, with plenty of light and air, to prevent their drawing up, until the middle of May, when they may be planted in the borders, or, if for their produce, three feet apart in rows four feet from each other. When they show bloom let all but the first half-dozen flower-heads be picked off, and that half-dozen will be the finer for it. Let the heads of seeds be gathered as soon as the outer seeds on the head turn black, and lay the heads in a box or on a cloth to catch the loose seeds. It is necessary to scare away birds when the seeds begin to ripen.

HELICHRYSUM. [Compositæ.] A handsome race of plants, producing "everlasting" flowers. The group formerly so named is now divided into genera, to which the names *Aphelaxis*, *Astelma*, and *Phanocoma* are applied. The species

of these genera, with many of the *Helichrysums*, are greenhouse shrubs, mostly very showy plants. The compost for them should be three parts turfy peat to one of sandy loam, and an eighth part of sand added. They strike from cuttings in sand under a bell-glass: the cuttings, when rooted, may be potted in three-inch pots, and be grown in the greenhouse near the glass. They should be topped as soon as they begin to grow, to induce them to form a shrubby habit, with numerous lateral shoots. While small they should not be allowed to flower, but the buds should be taken off as soon as they are discerned: this encourages free growth, and prevents loss of time, for the plants make little or no growth while the flowers are swelling and opening. All the shoots that are becoming too vigorous must be topped, so as to check informality or awkwardness of shape. *H. arenarium* is a showy dwarf hardy perennial, propagated readily by division, growing freely in any sandy soil, and bearing in August a profusion of yellow blossoms, which, though small, grow in good-sized heads, and are preserved to a considerable extent, dyed of various colours, and sold in the shops as a component of "winter nosegays." The common annual "Everlasting" and some allied plants, though introduced from New Holland, are treated exactly as half-hardy annuals, being sown in the open borders in March and April, or for earlier blooming on a gentle hotbed in March, and transplanted in May. They come into bloom at an advanced period of the summer, and continue a succession of blossoms until destroyed by the frosts of autumn.

HELIOPHILA. [Cruciferæ.] Hardy annuals, some of which are pretty flower-border plants. They should be sown in the open ground in March and April, or for earlier blooming in March, under cover, and afterwards planted out. Rather sandy soil is preferable, and they like exposure to sun. Two or three are delicate greenhouse shrubs, but not of much importance.

HELIOTROPIMUM. **HELIOTROPE** or **TURNSOLE.** [Ehretiaceæ.] A genus comprising stove and hardy annuals, and stove and greenhouse shrubs, of little importance except the Peruvian Heliotrope (*H. Peruvianum*), which is a great favourite in flower gardens, and bears grateful-smelling blos-

soms, prized chiefly for their perfume, which is compared to that of "cherry pie." This species is, strictly speaking, a greenhouse low shrub. The young shoots will strike freely in light sandy soil during summer under a frame or hand-glass, but more readily with slight warmth. When well rooted they may be potted into small pots, and placed in a frame or in the greenhouse, where they may grow till their roots show through the bottom of the pots, and then be changed into those of the next larger size. Top the leading shoots to produce laterals. They must be wintered in a dryish part of the greenhouse. If intended for beds and borders they must be hardened in cold frames in the spring, and planted out in June after danger from frost is over. It is sometimes preferred to keep an old plant or two through the winter, and to put them into a hotbed or warm house about February, when they will produce plenty of young shoots, the tops of which are quickly struck in a hotbed, and if potted and gradually hardened make good plants for turning out in June. Where there are no such conveniences the plants may be kept in a warm part of the greenhouse in spring, and the young shoots taken off as soon as they grow, planted in sandy soil, and covered by a glass. When rooted they may be potted or at once planted out, according to the season. There are now several varieties of the *Peruvian Heliotrope*, the principal variations consisting in the larger size of the blossoms and the deepening of the colour, which, in the variety *Voltaireanum*, as well as in *Salter's Gem*, is of a deep purple. *H. corymbosum* is the only other kind worth growing. Both for flower-beds and for bouquets the *Heliotrope* may be considered indispensable. Seed of the annual kinds may be sown in March in a frame or greenhouse: the plants, when large enough, may be pricked out three or four in a pot, and as they advance potted singly, or planted out where they are to remain. There are now many garden varieties.

HELLEBORUS. HELLEBORE. [Ranunculaceæ.] Showy hardy perennials of easy culture, growing in good garden soil and a rather shady situation, and increasing by dividing the roots in the dormant season. It is a desirable family. *H. niger*, called the Christmas Rose, is a favourite dwarf

species, which flowers all through the winter. *H. Olympicus* and some others of the Oriental species are the better for slight protection, their early blossoms being otherwise disfigured. These and *H. atrorubens*, purple, March and April, are the most desirable.

HELONIAS. [Melanthaceæ.] Hardy herbaceous perennials. Soil, peat, and a damp shady situation. Increased by division.

HEMEROCALLIS. DAY LILY. [Liliaceæ.] Hardy coarse-looking, but gay herbaceous perennials, possessing the property of producing blooms that last but one day: hence the trivial name. They are of the simplest culture, growing readily in ordinary garden soil, and are propagated by dividing the plants. Flowers are pretty freely produced from June to August. They are much alike on their claims for a place in the gardens.

HEMIANDRA. [Labiatae.] Pretty greenhouse evergreen sub-shrubs, allied to Prostanthera. Soil, peat and loam, with a sixth part of sand or charcoal. Increased by cuttings in sand under a bell-glass in heat. *H. emarginata*, flowers white and pink, in May. *H. pungens*, flowers rosy purple, in June.

HEMIGENIA. [Labiatae.] Greenhouse evergreen sub-shrub. Soil, sandy peat and loam. Increased by cuttings in sand under a bell-glass in heat. *H. purpurea*, flowers purple.

HEMP. See CANNABIS.

HENBANE. See HYOSCYAMUS.

HENFREYA. [Acanthaceæ.] *H. scandens* is a pretty stove evergreen climbing plant, bearing panicles of large white funnel-shaped flowers. It requires a compost of turfy loam and peat in equal proportions, mixed with sand to make it porous, and should be repotted in the beginning of summer, after it has ceased to produce its flowers. Propagated by cuttings planted in sand, and placed in a close warm frame.

HEPATICA. [Ranunculaceæ.] Pretty dwarf hardy herbaceous perennials. The common Hepatica (*H. triloba*) is one of the earliest of the spring flowers. These plants require a well-drained border (sandy loam, with one-third peat, is

preferable), and never succeed well in soil where there is stagnant moisture. They deserve a place in every choice garden for their dwarf habit, bright colours, and early flowers. The plants increase by side-shoots, which spread into a moderate-sized tuft in a season or two if undisturbed. They are increased in number by separating these tufts, so that each heart or side-shoot with roots attached may become a plant. This is done in spring, the roots being separated into pieces not too small; for, although the smallest bit would in time spread, they would be two or three seasons before they were fit to plant in the borders. These should be planted in nursery-beds, about six inches apart, and after one season's growth they will be large enough to plant out where they are to remain. The beds must be kept clear from weeds, and the earth stirred upon the surface between the plants in February. These plants are rather impatient of extreme drought. The double varieties are superior to the single, and therefore are mostly cultivated; but the double white is very scarce, if not altogether lost, and therefore the single white is grown. They are all pretty, double and single.

HERACLEUM. *Cow Parsnip.* [Umbelliferae.] Large coarse-growing hardy perennials and biennials, bearing large umbels of white flowers. The larger sorts are admirable plants for rough borders, rockwork on a large scale, wilderness scenery, or wherever a bold, striking, picturesque effect is required. Soil, deep rich loam. Increased abundantly by seeds. *H. giganteum*, *H. Wilhelmsiae*, and *H. Persicum* are some of the best for these purposes.

HERBERTIA. [Iridaceae.] Pretty little greenhouse or half-hardy bulbs. Soil, sandy loam, with one-fourth peat. Increased by offsets or by seeds. Like other half-hardy bulbs, they may be cultivated in well-drained borders if planted six or eight inches deep.

HERMANNIA. [Byttneriaceae.] Greenhouse evergreen shrubs, closely related to Mahernia. Soil, fibry loam and peat in equal parts, with a liberal addition of sand. Being free-growing plants, they require to be frequently renewed from cuttings, which will root if planted in sandy soil under a bell-glass in spring.

HERON'S BILL. See **ERODIUM.**

HESPERANTHA. EVENING FLOWER. [Iridaceæ.] Pretty greenhouse or half-hardy bulbs, allied to *Ixia*, and requiring the same mode of management. Soil, sandy loam and peat. Increased by offsets.

HESPERIS. ROCKET. [Cruciferae.] A genus of hardy plants, annual, biennial, and perennial. Some of the varieties of the common Rocket (*H. matronalis*), especially the double white and double purple, are very great favourites in the flower gardens. They are rather difficult to manage, especially in old gardens or in confined situations, for they love fresh soil and an open situation. A light rich loam is the best for them; but if an artificial compost has to be made up, as it should be if they are required in perfection, a third part of sandy peat mixed with two-thirds of mellow loam will grow them very well. Next to soil, the great secret of success is not to let them stand too long in a place, for under such circumstances they are sure to dwindle. They ought to be taken up and divided every second year, soon after they have done flowering—that is, early in autumn—and replanted in fresh soil. To have a display of healthy plants every year they should be divided into two sets. Those plants respectively which have bloomed in their second year, if taken up in each successive autumn and divided, will furnish a constant supply of young plants, the flowering of which should be prevented in the following summer, and they will then bloom vigorously in the second year from their transplantation. One reason why this constant transplantation is necessary is that the plant, in its original state, is naturally a biennial, perishing after it has produced flowers. The other species, most of which are also biennials, are unimportant compared with the varieties above alluded to.

HESPEROSCORDUM. [Liliaceæ.] Half-hardy bulbs. Soil, sandy loam. Increased by offsets or by seeds. *H. hyacinthinum*, flowers blue, in July. *H. lacteum*, flowers white, in July.

HEUCHERA. [Saxifragaceæ.] Hardy herbaceous perennials, with simple-looking flowers. Common soil. Increased by division.

HIBBERTIA. [Dilleniaceæ.] Ornamental greenhouse evergreen shrubs. They are raised by cuttings planted

under a bell-glass in sand, and grow in a mixture of equal parts sandy loam and peat. *H. Cunninghami*, flowers yellow, in June. *H. grossulariaefolia*, trailing, flowers yellow, in March. *H. perfoliata*, flowers yellow, in May. *H. volubilis*, twining, flowers yellow, in March.

HIBISCUS. [Malvaceæ.] A very extensive genus, comprising hardy and stove annuals, hardy herbaceous perennials, and hardy greenhouse and stove shrubs. The hardy annuals may be sown in the borders in March and April. They will grow well in good garden soil, and merely require to be thinned properly after they are up: the plants taken up to thin the others may be planted out carefully in other places. The hardy shrubs are splendid objects towards the end of summer when planted in dryish soils: they are increased by layers. The hardy perennials require a peaty soil, and a moist sheltered situation. The stove and greenhouse shrubs include some of the most gorgeous of plants: they grow freely in a compost of loam, peat, and sand, and are propagated by cuttings planted in sand, and put in a hotbed.

HINDSIA. [Cinchonaceæ.] Showy evergreen sub-shrubs, requiring a stove temperature. Soil, peat, with one-third loam and one-sixth sand. Propagated by cuttings in sand in a hotbed. The principal ones are *H. longiflora* and *H. violacea*.

HIPPEASTRUM. **KNIGHT'S STAR.** [Amaryllidaceæ.] Splendid stove and greenhouse bulbs, but they all grow well in a stove; and if, when they have opened their flowers, they are gently reduced to the greenhouse temperature, they last in flower some time. They all require to rest after they have perfected their blooms. To accomplish this some turn out the bulbs, and let them dry on a shelf. If, however, water is withheld from the time the bloom declines, and the pots are placed in a dry situation, it is just as well as taking them out of their pots. When they begin to grow in spring, which they will do without watering, the ball of earth should be turned out whole and placed in a larger pot, and then water must be supplied, and the plant set to work near the light in the warmest part of the house. If the bulbs are taken out of the soil, which will be required once in two or three years, let the leaves all turn yellow before they are disturbed; then they

may be shaken out so as to get rid of all the soil, and the roots allowed to dry; but except once in two or three years, in order to remove offsets, and to limit the size of the pots, this violence need not be done; indeed, they will always bloom better the second year after replanting than the first. By crossing hundreds of really beautiful varieties, and thousands good for nothing, have been raised. Those who desire to cultivate them should see collections in bloom, and select from them only; for, although twenty handsome hybrids might be named, there are inferior ones to be met with under the same titles. The seed may be sown in pots in the stove or hotbed, and the young plants pricked out an inch apart as soon as possible, unless they have been sown at this distance, and then kept growing the first season. After this change the pots for larger every year till they flower. The species and varieties are perpetuated by offsets from the bulbs. The species are few; but from the circumstance of their having been taken in hand by florists, and crossed in every conceivable direction, the seedling varieties are in proportion to the originals as fifty to one, and the cross-bred varieties are far more beautiful than the distinct species.

HIPPOCREPIS. HORSESHOE VETCH. [Leguminosæ, § Papilionacæ.] A genus containing two or three pretty trailing plants suitable for rockwork. Light sandy soil. Increased by seeds or by division.

HOITZIA. [Polemoniaceæ.] Pretty greenhouse subshrubs. Soil, sandy loam and peat. Increased by cuttings in sand in a hotbed. *H. coccinea*, scarlet; *H. cærulea*, blue; *H. glandulosa*, pale red, are the best.

HOLBOLLIA. [Lardizabalacæ.] Greenhouse fragrant-flowered climbers. Soil, peat, loam, and sand. Propagated by cuttings in sandy soil in a hotbed. Also called *Stauntonia*.

HOLLY. See **ILEX**.

HOLLYHOCK. See **ALTHEA**.

HONEY FLOWER. See **MELIANTHUS**.

HONEYSUCKLE. See **LONICERA**.

HONEYWORT. See **CERINTHE**.

HOOP-PETTICOAT. See **CORBULARIA**.

HORMINUM. [Labiatae.] A showy dwarf hardy herbaceous perennial, requiring a dry situation and a sandy soil,

or else to be kept in a dry cold frame in winter. Increased by seeds or division.

HORSESHOE VETCH. See HIPPOCREPIS.

HORSETAIL. See EQUISETUM.

HOTEIA. [Saxifragaceæ?] A very handsome hardy perennial, formerly called *Spiræa Japonica*. Soil, sandy loam and peat. Increased by division. *H. barbata* is the only one grown.

HOUND'S TONGUE. See CYNOGLOSSUM.

HOUSELEEK. See SEMPERVIVUM.

HOUSTONIA. [Cinchonaceæ.] Pretty little tufted perennial herbs, associating with alpinæ. Soil, a sandy mixture of three parts peat to one of loam. Increased by division.

HOVEA. [Leguminosæ, § Papilionaceæ.] Beautiful greenhouse evergreen shrubs. The flowers are of the shape of those of the garden pea, which form is called butterfly-shaped; and hence papilionaceous, from *papilio*, a name given to butterflies. Hoveas require a light fresh soil, but not rich: three-fourths of fibry peat to one-fourth of light loam, adding an eighth part of sand and as much of small charcoal, will suit them. The drainage must be good: one-third of the depth of the pots should be filled with crocks. They should be watered with great caution, so as to avoid either wetness or drought, and with clean rain water if possible. The best plants are raised from seed, which is often perfected; but cuttings, which should be the tips of unblooming shoots two inches long, will strike in sand. The cuttings are prepared by cutting off the leaves from the lower half without bruising the bark, and cutting the lower end clean through close under where a leaf had grown; they must be planted in pots prepared by being filled one-third with broken crocks, on this half an inch of rough turfy lumps of soil, then to within an inch of the top with sandy peat, pressed down very firm and even; the remainder is then to be filled up with clean silver sand, also pressed quite firm, and the whole must be watered thoroughly with a fine-rosed pot. In an hour or two, when it has drained, it will be fit for the cuttings. Insert them by making a little hole with a smooth-pointed stick just to the bottom of the sand; put in the cutting so that it rests on the bottom, and press in the sand with the end of the stick to

make it quite firm about the cutting. They may be put one or two inches apart, according to the size of their foliage, and when all planted should be gently watered to settle the soil. As soon as they have dried a little they must be covered with a bell-glass. The pots may be set in a greenhouse, and after a week or two a slight bottom heat would facilitate the striking. The glass should be taken off daily, and wiped dry inside: at the same time the soil must never get dry. During the whole time they must be shaded by putting a paper over the sunny side of the glass. When they have begun to grow the glass may be left off an hour every day; and as soon as the roots are well formed they must be potted into three-inch pots, keeping them at the same depth they were in the cutting-pot—on no account deeper. Keep them close for a week or two, after which they may be placed near the glass in the greenhouse, and merely protected from the scorching mid-day sun, and watered daily, or so that the roots are never parched. The tops may be pinched out as soon as they are fairly established, and this will encourage lateral shoots. As soon as the pots fill with roots change them for a size larger, using the same kind of sandy peat compost, and taking care not to bruise the fibres which are exposed outside the ball of earth. They may be allowed as much air as possible in mild weather, and when any of the lateral shoots are growing too vigorously let them be topped. In this way the plants may be grown from pot to pot until they form ultimately handsome large plants. Those who are anxious to form large specimens in a short time will pick off the buds of flowers while the plants are small; but in ordinary cases it is quite as well to let them bloom in season, and take their natural chance. When the flowers decay remove them, except when increase is wanted, because the formation of seed-pods would retard growth and lessen their vigour. To raise the seed sow it in pans or wide-mouthed pots, placed in the greenhouse. As soon as the plants are up they must be kept clear of weeds and occasionally watered until they are large enough to be pricked out in other pots an inch and a half apart, where they may grow till they are large enough to be potted singly, after which they must be treated exactly like cuttings. The best are *H. Celsii*, blue;

H. elliptica, purple; *H. ilicifolia*, purple blue; *H. linearis*, *H. longifolia*, purple; *H. pungens*, blue; *H. splendens*, blue; but two or three are as many as one would care for, and *H. ilicifolia* is the best of all.

HOYA [Asclepiadaceæ.] A genus of showy plants, mostly climbers, and mostly requiring stove heat. The popular *H. carnosa* may, however, be grown in a greenhouse, or, indeed, in a window, although it also thrives well in a stronger heat. This, an extensively climbing shrub, has umbels of flowers of a peculiar waxy appearance, whitish, with rose colour at the centre, where hangs a drop of limpid honey. We have seen this plant thriving admirably in a Wardian case, placed in a parlour window having a sunny aspect. It is reared by cuttings, which root freely planted in sandy soil, and not too much watered. When rooted they require a compost of loam and peat, and a tolerably large pot; but it must be thoroughly drained, and some such porous material as broken brick or broken charcoal should be largely intermixed with the soil. When the roots get firm hold of a considerable body of such an open compost the branches grow away rapidly, and in a healthy manner, and require only to be fastened in such positions as they are to occupy. Blossoms are developed in due course; and here it should be stated that the old bloom-stalks should not be removed, for these put out blossoms year after year—a very singular fact in the economy of this plant. It does not require very large supplies of water, especially in a dormant state. *Hoya bella*, *H. imperialis*, and *H. Cunninghamiæ* are most desirable.

HUERNIA. [Asclepiadaceæ.] Greenhouse succulent evergreen, related to Stapelia. Soil, sandy loam, with a little peat. Increased by cuttings, which should be dried a little before being planted.

HUGELIA. [Polemoniaceæ.] Dwarf hardy annuals, closely related to Gilia, and requiring the same treatment. Light garden soil. They should be sown in the open borders in March and in April.

HUMEA. [Compositæ.] *H. elegans* is a very elegant greenhouse biennial. It is the graceful form of growth which it assumes that renders it a favourite. The whole plant is not much unlike a pyramidal fountain; the branches shoot out

equally all round, the blossom hangs down, and there is so much grace in the form of the plant, that, without any approach to brightness or even clearness of colour, it is a striking object. The seeds must be raised in heat in the spring, and the young plants treated all the summer as greenhouse plants, that is, potted off when they are large enough into small pots, shifted to larger ones as they fill the pots with roots, and kept in the greenhouse or in a cold frame, having, however, plenty of air. In the following June some may be planted out in a warm situation in the borders, where they will grow up from six to ten feet high. Others may be potted in twelve-inch pots, with loam and dung in equal parts for the compost. Those in pots must be regularly supplied with water, because they will grow fast and take a good deal; indeed, if weak manure water is given twice a week when they have nearly reached their full growth they will be benefited. The plant looks richer when not overgrown.

HYACINTHUS. **HYACINTH.** [Liliaceæ.] Beautiful and well-known bulbs. *H. amethystinus* is a charming little hardy species, which should be planted in sandy loam. The cultivated varieties of Hyacinth are the progeny of *H. orientalis*. Immense numbers of the bulbs of these odoriferous and showy plants are annually imported from Holland, and, after having been once bloomed, are thrown by or planted in common borders to degenerate from neglect. To grow the Hyacinth properly the soil should be composed of one-half turfy loam of mellow texture, one-fourth old cowdung, or cowdung mixed with leaf-mould, and one-fourth clean but coarse sand. For beds, loam, sand, and dung, rotted to mould, in equal quantities, may be used. In soil such as this the offsets of the Hyacinth will grow, till in two or three seasons they come to full size and perfection, and bulbs thus grown annually will not degenerate. They must be planted in October, and be taken up when the leaves die down. The beds must be protected against severe frosts and heavy rains in winter, and against all that may damage the foliage in spring. Hyacinths flower beautifully in pots as well as in glasses for the greenhouse and window. Deep pots, five inches in diameter, should be used, the soil made very firm beneath the bulb, and the top of the bulb about level with the surface. The medium-

sized, plump-looking, full-crowned bulbs should be chosen and potted early in October. After potting plunge the pots in old tan or coal ashes so as to cover them two or three inches. They are to remain until removed in succession to a warm room or house to forward the blooms. When grown in glasses of water the dark-coloured glasses should be preferred, and the more opaque the better. November is soon enough to put the bulbs in the glasses. First keep them a week or so in damp sand or moss, then put them in the hollowed top of the glass, and at first allow the water but just to touch their base. Rain water, quite clean, should be used, and this changed once a week. The glasses should be set in the dark until the roots have grown an inch or two in length. When the flower-stem is advancing two drops of spirits of hartshorn may be put into the water each time it is changed with advantage. Tye's Hyacinth-glasses are the best, and these are provided with an elegant support for the stem. Bulbs grown in water should be put in the ground directly their flowers have decayed, for they derive considerable strength from it, and, besides that, perfect their offsets if they have any. Hyacinths will grow well in wet sand, and when it is covered with moss the plants look very pretty.

HYDRANGEA. [Saxifragacæ.] Hardy or half-hardy deciduous shrubs, most of them showy plants. *H. hortensis*, the most popular of this family, has been long familiar as one of the commonest of market plants. Grown in the ordinary way it is very showy, but with pains it is to be made a very noble object. There are two very different ways of growing it—the one to form a shrubby plant, the other a single stem and a large flower-head. The latter is the favourite mode of growing it for show, the aim being to produce as large a head as possible. For this purpose take cuttings in July of the strongest shoots, and plant them in sandy soil under a hand-glass: when rooted pot them in five-inch pots, in a compost of one-third loam, one-third dung, and one-third peat, well mixed together, and passed through a very coarse sieve. Such of them as branch out will make pretty little shrubby plants, whilst those whose growth is confined to a single stem will, in all probability, form a large flower-head. When the general set of plants drop their leaves, and indicate by their

terminal buds the strongest heads, some of the most promising cuttings may be taken off and struck in slight bottom heat under a bell-glass, and grown in the stove at once. This will give a change of season, as well as a difference in growth, but all will be fine. The plants may be grown into good-sized bushes by shifting every season into large pots or tubs, which may be wintered in a cold house free from frost. When growing as an outdoor shrub the *Hydrangea* must be protected in some way, either by matting or covering with litter, otherwise the points of the shoots will be killed, and with them the incipient bloom-buds. It is, indeed, sometimes in severe winters killed down close to the ground, but it will spring up from the roots, and grow vigorously to make up for its lost wood. It should have a moist sheltered situation. The potted plants struck in July should be bloomed in the greenhouse, but any of them may be turned out into the borders in May. The *Hydrangea*, like many other plants, blooms finer when young than when it has grown three or four years; for though the plant is larger, and has more heads of flowers, the heads and the individual flowers also are smaller. The plant forces well, and is one of the prettiest forced flowers in spring. The *H. Japonica* is very distinct, and though it does not bloom in such large heads as the other, its appearance is more picturesque, especially when grown as a bush. *H. Japonica variegata* is grown for its foliage.

HYDROPHYLLUM. WATER LEAF. [Hydrophyllaceæ.] Hardy herbaceous perennials. Soil, peat and loam in moist situations. Increased by division. *H. Canadensis*, white; and *H. Virginicum*, blue, are the principal.

HYMENOCALLIS. [Amaryllidaceæ.] Fine stove and greenhouse bulbs, related to *Pancratium*. Soil, rich sandy loam. Increased by offsets. There are many species and varieties.

HYMENOPHYLLUM. FILM FERN. [Polypodiaceæ.] Delicately beautiful ferns. They should be fastened to a damp sandstone or log of wood among fine moss, and kept quite damp in a close glazed case. Increased by division, but the less they are disturbed the better. The principal are *H. dilatatum*, greenhouse evergreen; *H. Tunbridgense* and *H. unilaterale*, half-hardy evergreen ferns.

HYPERICUM. ST. JOHN'S WORT. [Hypericaceæ.] A large genus, containing many hardy species, both perennial herbs and shrubs, as well as some greenhouse and frame species. The hardy perennials and shrubs all grow readily in common sandy soil, and are increased, the former by division, the latter by layers. *H. calycinum* is a dwarf hardy showy species, which grows freely under the shade of trees. The greenhouse shrubs grow in sandy peat and loam, and propagate freely by cuttings. Yellow is almost universally the colour of the flowers in this genus, although there are numerous varieties.

HYPOCALYMMMA. [Myrtaceæ.] Greenhouse evergreen shrubs. Soil, peat, loam, and sand. Increased by cuttings in sand under a bell-glass.

HYPOCALYPTUS. [Leguminosæ, § Papilionaceæ.] Greenhouse evergreen shrub. Soil, peat, loam, and sand. Increased by cuttings in sand under a glass.

HYPOXIS. [Hypoxidaceæ.] Greenhouse herbaceous perennials for the most part. They are remarkably showy plants when the sun is on them, but the flowers close in dull weather. Soil, sandy peat, with one-third loam. Increased by division.

IBERIS. CANDYTUFT. [Cruciferae.] A genus containing some well-known hardy annual and a few greenhouse and hardy sub-shrubs. The annuals are showy and useful border plants, perfectly hardy, growing in any kind of soil, and requiring only to be sown where they are to flower. In the borders they will sometimes shed their seed, and the plants come up in autumn, and stand the winter if it be not too severe. Candytuft makes a good clump plant for a geometrical garden, because it does not grow higher than six or nine inches, and forms a complete mass of flowers in its season, being literally covered with bloom. The natural blooming season may be prolonged by sowing some in pots as early as February, thinning them as they come up, and nursing them in the greenhouse or frames till May, when they will be almost in flower. The seed sown in the borders will be a month or six weeks later before it flowers, and a later sowing towards the end of May will carry on the succession. The sub-shrubby evergreen species thrive in light soil, and the

hardy ones are very beautiful for rockwork, or, for early blooming, small groups in the flower garden: they are propagated freely by cuttings in sandy soil under hand-lights in a shady place early in the summer. *I. coronaria*, hardy annual, white. *I. Gibraltaria*, frame evergreen sub-shrub, whitish pink. *I. odorata*, hardy annual, white. *I. saxatilis*, hardy evergreen sub-shrub, white. *I. sempervirens*, white. *I. umbellata* is the common one of purple, red, and white.

ICE PLANT. See MESEMBRYANTHEMUM.

ILEX. HOLLY. [Aquifoliaceæ.] Evergreen shrubs, valuable both for beauty of growth and also for variety. Hollies grow best in a dryish or light sandy loam. Propagated, the common sorts by seeds or berries, which do not vegetate till the second year; the others by cuttings of ripened shoots in autumn, or by budding and grafting, which latter mode is practised with the beautiful variegated-leaved sorts. For small gardens the common Holly (*I. aquifolium*) affords sufficient variety, including, besides the common form, an evergreen with dark green spiny leaves; others in which the leaves are spineless, saw-edged, and hedgehog prickly; gold and silver blotched, and gold and silver edged; others are white or yellow-fruited. Of the variegated forms there are many variations which are quite constant and distinct. There are some greenhouse and stove evergreens, which are of little garden interest. *I. Paraguayensis*, a stove plant, furnishes the Maté or Paraguay tea. It is the ornamental foliage chiefly for which Hollies are cultivated. The number of varieties is immense.

ILLICIUM. ANISEED TREE. [Magnoliaceæ.] Half-hardy evergreen shrubs, with good foliage and curious flowers. Soil, peat and loam. Increased by cuttings of young ripened shoots in sand, or by layers, which take two years to get well established.

IMPATIENS. TOUCH-ME-NOT. [Balsaminaceæ.] Annual or perennial fleshy-stemmed plants, mostly requiring the assistance of artificial heat and a moist sheltered climate. The stove perennial kinds are increased by cuttings in a brisk hotbed, and grow well in a rich light compost. The tender annuals should be raised in hot frames from seeds in February or March, and grown on until summer near the glass in hot frames or hothouses, and may then be bloomed

in a greenhouse after its usual occupants are placed out of doors. Most of these may be raised from cuttings, or made biennial by removing all flower-buds the first year. Some of them, if reared in a mild heat, and carefully inured to exposure, will flower out of doors in a moderately sheltered situation; but they require a moist atmosphere, and moisture at the roots, as well as a warm exposure. *I. glandulifera*, *I. macrochila*, and *I. candida* are the best for this treatment: these have a fine pyramidal habit, and bloom abundantly. The hardy annuals may be sown in the open border in a dampish sheltered place, and there they will spring up abundantly from scattered seeds. See BALSAMINA for culture of the stove annual kinds.

INDIAN CRESS. See TROPÆOLUM.

INDIAN FIG CACTUS. See OPUNTIA.

INDIAN PINK. See DIANTHUS.

INDIAN SHOT. See CANNA.

INDIGOFERA. INDIGO. [Leguminosæ, § Papilionaceæ.] An extensive genus, not of much importance in an ornamental point of view, and on that account seldom cultivated. It contains many stove shrubs and annuals, and also some greenhouse shrubs, two or three of which latter are very pretty objects. They are increased by cuttings in sand under bell-glasses, or more easily by seeds when these are produced. The young plants should be potted into a compost of turfy peat and loam in about equal parts, sand being added to render it porous: they must not be over-potted, but shifted only as their roots thicken into pots a size, or at most two sizes larger. In other respects they require the usual attention bestowed on greenhouse plants. They are very liable to the attacks of red spider. *I. decora* is the best, but there are many others.

INGA. [Leguminosæ, § Mimosæ.] Very beautiful stove shrubs. Peat and loam. Propagated by cuttings in sand under a bell-glass, and placed in a brisk bottom heat; sometimes by seeds. They require brisk heat in summer while growing, and afterwards to be kept cooler and drier.

IOCHROMA. [Solanaceæ.] Greenhouse shrubs, allied to, and with the habit of, *Habrothamnus*. Rich sandy loam and peat. Increased by cuttings of the half-ripened shoots

in sand in a gentle heat. *I. tubulosa*, flowers violet purple, in July.

IONOPSIDUM. VIOLET CRESS. [Cruciferae.] A pretty dwarf hardy annual, forming a beautiful plant for rockwork in a shady situation, or an under-growth for a peat border or for pot culture. It forms close to the soil a compact tuft, studded with numerous lilac cross-shaped flowers. *I. acaule*, flowers lilac.

IPOMÆA. [Convolvulaceae.] A large genus of showy Convolvulus-like plants, consisting mostly of climbing species, of which the greater number require a stove temperature. The sub-shrubby and perennial kinds are increased by cuttings of the short lateral shoots in sandy soil under glasses. Those which have fleshy roots are more difficult to propagate, unless cuttings of the young shoots which break from the crown of the tuber are taken • they require brisk bottom heat. The tuberous fleshy-rooted sorts may sometimes be increased by division, but not readily. Portions of the roots, however, of the commoner sorts serve as stocks, on which the rarer and more difficult may be grafted with success by what is called herbaceous grafting, a good heat and a close frame being indispensable. The annuals are raised by seeds sown in a hotbed only in spring. The soil for them should be turfy peat and sandy loam, with plenty of gritty sand added, and the roots well drained. The fleshy-rooted kinds require to be kept moderately dry in winter. Their habit is various. Some bloom in the axils along the branches; and others, including *I. Horsfalliæ*, which is one of the best, bloom only at the end of the shoots. With these latter it is a practice to top the shoots when five or six feet long, to cause several laterals to branch out; and the result is that, though the blossoming is retarded, there are many more flowers produced in the end. Stopped in this way, and trained over the roof or the wall of a stove, this is one of the finest of all creepers. *I. ficifolia*, stove twining perennial, flowers rosy purple, in August. *I. Horsfalliæ*, stove twining shrub, flowers crimson, in October. *I. pandurata*, hardy twining perennial, flowers white and purple. *I. rubro-cærulea*, half-hardy twining annual, flowers blue, fading red. There are numerous other varieties.

IPOMOPSIS. [Polemoniaceæ.] Splendid-flowered biennials of rather difficult culture. The seeds should be sown in July thinly in small pots, set into a cold dry frame; the plants are to be thinned to three or four, and removed to a shelf in the greenhouse near the glass, where they remain during winter, being very moderately and carefully watered. In spring they are shifted into five-inch pots with as little disturbance to their roots as possible; but one or two of the plants should be cut away, leaving the strongest. They require throughout very careful watering, being very impatient of moisture. A compost of equal proportions of sandy peat and sandy loam, mixed with lumps of charcoal to keep it open and porous, suits them; and they are multiplied by seeds only.

IRIS. FLOWER-DE-LUCE. [Iridaceæ.] Beautiful hardy perennials of very simple culture. They prefer a loamy soil, somewhat moist, and thrive best when not too frequently disturbed, as they then spread into good-sized patches, and produce a greater abundance of flowers. They are propagated without the least difficulty by dividing the plants. There are one or two bulbous-rooted species—*I. xiphium* and *I. xiphoides*, the latter commonly called English, and the former Spanish Iris—the varieties of which are extensively cultivated as florists' flowers. The varieties of colour among these bulbous kinds are very great, including white, yellow, blue, purple, and many indescribable tints. These should be planted a foot apart in a rich bed of loam, dung, and sand, and should be removed only once in two years, the transplantation taking place in September. They increase by offsets, and their varieties are beyond calculation.

ISMENE. PERUVIAN DAFFODIL. [Amaryllidaceæ.] Stove bulbs. Deep sandy soil. Increased by offsets. The best way to manage them is to treat them as half-hardy bulbs, planting them deeply in a warm border in April, taking them up as soon as frost destroys the leaves, and keeping them quite dry and from frost during winter.

ISOPLEXIS. [Scrophulariaceæ.] Shrubby Foxgloves. They are showy greenhouse evergreen shrubs. Light loamy compost. Increased by seeds or cuttings of the half-ripened shoots.

ISOPOGON. [Proteaceæ.] Greenhouse evergreen shrubs from New Holland. Sandy peat, with one-third loam. Increased by cuttings in sand under bell-glasses. They are of slight importance as ornamental plants.

ISOTOMA. [Lobeliaceæ.] A pretty dwarf blue-flowered Lobelia-like plant, requiring the shelter of a greenhouse in winter, but growing in the open air in summer, and blossoming through a great part of that period. It grows best in a dryish sandy loam, and in a warm situation. The plants should be raised from seeds in July, and kept through the winter in a dry frame or greenhouse in readiness for planting out the following May or June. There are many varieties.

ISOTROPIS. [Leguminosæ, § Papilionaceæ.] Greenhouse evergreen shrubs. Sandy peat and loam. Propagated by cuttings in sand under bell-glasses

IVY. See **HEDERA.**

IXIA. [Iridaceæ.] Very beautiful bulbous plants, with brilliant flowers. They delight in sandy loam and peat earth in equal quantities, with a little well-decomposed dung and a south border made up of this compost will bloom them in high perfection. They are handsome pot plants: and, although few flowers so well deserve attention, yet few are so little known and appreciated. They should be potted in October, and placed in a frame, where they must be protected against frost and excess of wet, and from which they may be removed to the greenhouse as soon as they indicate bloom. Three or four bulbs are sufficient in a pot, and the plants in each pot should be confined to one sort. Whether in pots or in borders they must not be reached by frost, and should be guarded against wet in winter; nor must they be suffered to get dry during the season of growth. Ixias are increased by offsets from the old bulbs, which should be separated at potting or planting time, or placed in a store pot or bed. They may also be raised from seeds, which should be sown very thinly in a pan. After the first year's growth, and when the foliage dies, the diminutive bulbs may be transferred to other pans or pots, and put in an inch and a half apart, or three or four in a small pot, and in this way continued to be grown until they flower. The varieties are already numerous.

IXIOLIRION. [Amaryllidacæ.] Pretty hardy bulbs, which will grow readily in sandy loam, and are increased by offsets from the parent bulbs. They also bear seeds, by which they may be multiplied

IXORA. [Cinchonacæ.] Noble stove evergreen shrubs. They require a soil of loam and peat earth, and they must be grown fully exposed to the light. The cuttings root easily in bottom heat in sand, a layer of an inch in thickness, and require a bell-glass over them: the sand should rest on a sandy mixture of loam and peat, into which the roots strike and receive nourishment. When well rooted pot them in three-inch pots, and pinch out the growing heart to make the plant bushy. As the roots fill the pots the plants must be removed into others a size larger, and the plants must be kept in a high stove temperature, with the pots plunged in a bed affording a brisk warmth to the roots. About two shifts annually, first to a five-inch pot, then to an eight: a ten-inch and twelve-inch in succession will then carry on the plants to a good blooming size. The pots must be well drained, and good attention afforded as respects water, heat, air, &c., according to the routine of stove management. The vigorous shoots should be topped while the plant is thus in process of formation, to secure a greater number of branches and the requisite bushiness of growth; but after this the annual growth must be allowed to develop itself unchecked, the blooms coming in heads at the ends of the stronger shoots. After blooming the plants may be cut into a good shape. They are very liable, as are all evergreen stove shrubs, to the attacks of scale insect and mealy bug. The precautionary measures are to examine frequently to see if there be any attack of this sort, and, if there be, wash gently with a shaving-brush and soap and water, the plants being afterwards syringed to clear them of the soapsuds: this remedy must be applied very often if necessary. The noble trusses of bloom come at the ends of the shoots, and come large in proportion to the strength of the shoot; so that the stopping of the main shoots to produce side ones must be the work of judgment, because it is possible to keep stopping, and thereby increasing the number of shoots, until they are too weak to flower well, if at all. *I. alba*, flowers white; *I. coccinea*, scarlet; *I. crocata*,

orange red; *I. Griffithii*, rich saffron vermilion; *I. Javanica*, orange red.

JACARANDA. [Bignoniaceæ.] Fine stove evergreen trees, remarkable for the elegance of their highly compound foliage. Soil, peat and loam. Increased by cuttings of half-ripened shoots in the summer months, planted in sand under bell-glasses in a brisk heat. *J. mimosæfolia* is pretty.

JACKSONIA. [Leguminosæ, § Papilionaceæ.] Pretty greenhouse evergreen shrubs. Soil, sandy peat, with a third part light loam. Increased by culture in sand under bell-glasses.

JACOBÆAN LILY. See SPREKELIA

JACQUEMONTIA. [Convolvulaceæ.] Pretty evergreen twining plants, requiring a stove or warm greenhouse. Propagated by cuttings of the lateral shoots planted in sand, and placed in heat. They grow in a light compost of turfy peat, loam, and sand, and require training over a considerable surface to insure the development of blossoms.

JAMBOSA. [Myrtaceæ.] Stove evergreen shrubs, with the exception mentioned below. Soil, peat and loam. Increased by cuttings in sand under glasses. *J. australis*, greenhouse evergreen shrub, flowers white, in May

JAPAN ALLSPICE. See CHIMONANTHUS

JAPAN CEDAR. See CRYPTOMERIA.

JASIONE. SHEEP'S SCABIOUS. [Campanulaceæ.] Pretty dwarf herbs, bearing blue flowers collected in heads. The annuals may be sown in the borders in March, and require no other care than thinning if the plants come up too thick. The perennials are increased by seeds or by division, and require but to be planted in a warm border in sandy soil. *J. montana*, hardy annual, flowers pale blue. *J. perennis*, hardy perennial, flowers blue.

JASMINUM. JASMINE. [Jasminaceæ.] Favourite climbing shrubs, many of them evergreen, and nearly all adapted for trellises, &c. Some require stove heat, others a greenhouse, and some are hardy. The latter are of very simple culture, being propagated by cuttings planted in sandy soil under hand-glasses, and when established growing freely in good garden soil. The greenhouse and stove kinds should be planted in a mixture of equal parts loam and peat, with

some sand added; and they are increased by cuttings planted in sandy soil, and placed in a close warm situation, such as a hotbed or a propagating pit. The flowers are for the most part deliciously fragrant. There are many sorts known in gardens, but the half of them require stove heat. The best are *J. affine*, white; *J. revolutum*, yellow; and *J. nudiflorum*, yellow and hardy. There are some pretty stove and greenhouse varieties.

JEFFERSONIA. [Berberidaceæ.] A neat hardy herbaceous perennial. Soil, sandy loam. Increased by division of the plant, which should be done in spring, or by seeds. *J. diphylla*, hardy perennial, flowers white, in May.

JONQUIL. See **NARCISSUS**

JUDAS TREE. See **CERCIS**.

JUGLANS. **WALNUT.** [Juglandaceæ.] Hardy deciduous trees, some of which are useful for their fruit, and others ornamental on account of their habit and fine pinnated foliage. Deep loamy soil. Increased by seeds, or by budding or grafting.

JUNIPERUS. **JUNIPER.** [Pinaceæ.] Evergreens, many of which are remarkably ornamental in habit, forming light, spreading, more or less pendulous bushes or low trees. The Junipers prefer a light loamy soil, but are not difficult of culture in any that is moderately good, and not wet or heavy. Increased with most facility by seeds, but the rarer kinds may be propagated by grafting, or by cuttings of the firm young shoots, planted in sandy soil on a shady border, and covered by a hand-light.

JURINEA. [Compositæ] Hardy herbaceous perennials. Common soil. Division of the root. *J. spectabilis*, flowers purple, in June.

JUSTICIA. [Acanthaceæ.] Stove sub-shrubby plants of easy management. Soil, rich loam and leaf-mould. Increased by cuttings in sand in a hotbed; and, being fast growers, it is best to raise young plants annually. The species of *Justicia* are now distributed among numerous new genera, but for convenience we shall retain them under their old names, selecting a few of the most desirable. *J. carnea*, evergreen, flowers pink. *J. nasuta*, flowers white. *J. nodosa*, pink. *J. oblongata*, rose pink. *J. speciosa*, flowers purple.

KALMIA. [Ericaceæ.] Beautiful evergreen shrubs, belonging to the group commonly called "American plants," from the majority having been originally obtained from America. The Kalmias are readily forced into early blossom by the stimulus of artificial heat. The proper soil for them is sandy peat earth; it is, in fact, the usual and the best practice to plant these Kalmias, together with Rhododendrons, Azaleas, &c., in separate beds or patches prepared with peat soil. They are usually increased by layers made at the end of summer, but may also be raised from seeds, in which case the seeds require to be sown in shallow pans of sandy peat, and kept close in a frame: the seedlings are transplanted to other pans as soon as large enough to be handled, and again kept close for a time until established, when they are gradually inured to exposure. *K. glauca*, flowers red. *K. hirsuta*, flowers red. *K. latifolia*, the best of all, flowers pink.

KALOSANTHES. [Crassulaceæ.] Beautiful succulent plants, formerly known as *Crassulas*. They are propagated by short cuttings of the points of the free-growing shoots taken about the end of August, and which, after being cut through at a joint, and a few of the lower leaves taken off, should be laid out for a day or two to dry a little, and then planted singly in small pots in sandy soil, and set on a shelf in the greenhouse, where they should have just water enough given to keep the soil moistened—no more. When they are rooted the tops should be taken off to cause other shoots to be produced, and these must also be topped when a few inches long for a similar purpose, the topping being repeated as the plants grow until the requisite size and bushiness are secured. When by this means a dwarf thickly-branched plant is produced it may be let grow to flower. The pots should be changed for larger ones as often as they get filled with roots; and a rich, but very free, open, loamy soil employed, such as a mixture of mellow loam with coarse sand and leaf-mould, or quite decayed dung. In winter they should be kept nearly dry in a cool airy greenhouse or pit, beyond the reach of frost. Old plants after blooming should be cut down to a skeleton, when they will produce young shoots for flowering the following year. In hot dryish situations these plants make a very showy bed in the flower

garden for this purpose they should be wintered in dry cold frames, and planted out about the end of May. There are several garden varieties of *K. coccinea*; that called *miniata*, with scarlet flowers, is the best.

KAULFUSSIA. [Compositæ.] A neat hardy annual, forming a pretty dwarf plant for the margins of beds. The seed should be sown in April in finely-pulverised soil; or, to obtain earlier blooms, it may be sown in pots in March, and reared in a frame, ready to be planted out in good time in May, almost or quite in bloom. For later flowering plants it should be sown again about the end of July. It will grow in any good garden soil.

KENNEDYA. [Leguminosæ. § Papilionaceæ.] Greenhouse evergreen twiners of considerable beauty. They may be grown and bloomed in pots; and, as they climb to a considerable height, they are suitable for rafters and pillars in conservatories. They grow best in a compost of half sandy loam, a fourth dung, and a fourth turfy peat, with sand, about a fifth of the whole, added. Small plants just rooted may be potted in this compost in three-inch pots, and grown in the greenhouse until they are full of roots, and then changed to larger pots until the size is sufficient to carry a proper trellis. A good deal of taste may be exercised in the choice of a support. Climbing plants are often made very unnatural and frightful by the manner of training. In a general way, we may observe that great round shields are like nothing in nature, pyramids are bad, because the plants want more space to cover instead of less as they advance upwards; a straight pillar is tolerable, for we see Ivy climbing a stone pillar; and climbing plants of any sort will cling to a column. Young plants raised in spring, and grown well all the summer, will bloom abundantly the next spring. They seed freely, and may be grown from seeds without difficulty. Sow in pans or boxes, and put them in a hotbed or propagating house; and when they are up, and large enough to be removed, prick them out three or four together in a three-inch pot. When they have grown a couple of months or so let them have a pot each, and then grow them on the same as other plants. To raise them from cuttings select young shoots, and plant them in sand under a bell-glass: when

they begin to grow pot them in three-inch pots separately, to be treated as already directed. The species of *Hardenbergia*, *Physolobium*, and *Zichya* were formerly included under *Kennedya*. *K. inophylla*, flowers scarlet. *K. eximia*, flowers scarlet. *K. Marryattæ*, scarlet. *K. nigricans*, dark. *K. prostrata*, scarlet. *K. rubicunda*, red.

KERRIA. [Rosaceæ.] Hardy deciduous shrubs, with green stems and yellow flowers, often seen against walls and fences in old gardens. It is a free-growing plant, adapted for such situations, growing best in light soils. Readily increased by suckers, or by cuttings under a hand-light. The double-flowered variety is the most ornamental.

KNIGHTIA. [Proteaceæ.] A greenhouse evergreen tree, allied to *Grevillea*. Soil, peat, with one-fourth sandy loam. Propagated by cuttings of the ripe shoots in sand under bell-glasses.

KNIGHT'S STAR. See **HIPPEASTRUM.**

KOELREUTERIA. [Sapindaceæ.] A small hardy deciduous tree, with elegant pinnate foliage, and upright panicles of yellow blossoms. It is suitable for a pleasure-ground or shrubbery. Will grow in ordinary garden soil, and is increased either by seeds or by cuttings of the roots or branches.

KONIGA. [Cruciferæ.] A simple, but useful dwarf hardy annual. The seeds may be sown in spring in the borders where the plants are to bloom. The flowers have a rather peculiar, strong, but not disagreeable scent, resembling that of honey. *K. maritima* is the principal one.

LABICHÆA. [Leguminosæ, § Cæsalpinieæ.] Greenhouse evergreen shrubs. Soil, peat and loam. Propagated by cuttings of the half-ripened shoots in sand under bell-glasses. *L. bipunctata* and *L. diversifolia* flower yellow, in April.

LABRADOR TEA. See **LEDUM.**

LABURNUM. See **CYTISUS.**

LACHENALIA. [Liliaceæ.] Ornamental bulbous plants, requiring greenhouse culture. The bulbs should be potted about August or September into moderate-sized pots, two or three in each, and they may be kept on a shelf in the greenhouse, with occasional moderate waterings, until they come

into a blooming state. They flourish in a compost of half peat and half loam, with sand added, and used in rather a rough state, the pots being well drained. During their growth they ought not to get at all parched, though, especially in the earlier stages, they suffer injury from any excess of water. When in bloom they are among the prettiest ornaments of the greenhouse, with their upright spikes of drooping gaily-coloured tubes. They increase by offsets from the bulbs. *Lachenalias* may be cultivated in a frame, moderately protected against frost in severe weather. There are many species, but few at present in cultivation.

LACHNÆA. [Thymelacææ.] Greenhouse evergreen shrubs. Soil, sandy peat, with one-fourth loam. Propagated by cuttings.

LADY FERN. See **ATHYRIUM.**

LADY'S MANTLE. See **ALCHEMILLA.**

LADY'S SLIPPER. See **CYPRIPEDIUM.**

LADY'S SMOCK. See **CARDAMINE.**

LAGENARIA. **BOTTLE GOURD.** [Cucurbitacææ.] Annual trailing plants, requiring to be raised in heat in the spring, and hardened off previously to their being planted out about the end of May in sheltered places, such as against walls and palings, or on a raised bed in a warm corner of the garden. Rich light soil. Increased by seeds. The curious bottle-shaped fruits are the objects for which they are cultivated.

LAGERSTRÆMIA. [Lythracææ.] A genus of handsome shrubs, containing some greenhouse species. Soil, peat and loam. Propagated by cuttings of the small half-ripened lateral shoots in sand, under bell-glasses, in heat. *L. Indica*, stove evergreen shrub, flowers white or rose-coloured. *L. speciosa*, stove evergreen shrub, flowers rose-coloured.

LALAGE. [Leguminosæ, § Papilionacææ.] Handsome greenhouse evergreen shrubs, allied to *Platylobium*. They should be planted in sandy peat soil, with a fourth of fibrous loam, and are increased by cuttings of the half-ripened young shoots in sand under bell-glasses. *L. hoveæfolia*, flowers yellow and orange. *L. ornata*, flowers yellow and purple.

LAMBERTIA. [Proteacææ.] Greenhouse evergreen

shrubs. Soil, sandy loam and fibry peat. Propagated by cuttings of the ripe shoots in sand under bell-glasses. *L. formosa*, with red flowers in July, is the handsomest.

LAMB'S LETTUCE. See VALERIANELLA.

LAMIUM. [Lamiaceæ.] Hardy plants, of which some of the dwarf perennial kind varieties, and *L. maculatum*, with variegated foliage and white or red blossoms, are pretty subjects for rockwork. Common soil. Increased by division.

LANTANA. [Verbenaceæ.] Stove shrubs, many of the more showy of which, however, may be considered as greenhouse plants if they can be started in spring in a frame or warmer house. The larger species should be kept rather dry in winter, when they will be induced to rest, and will lose their foliage; but if they are excited at that season they continue growing and remain evergreen. In spring, about February, they are to be pruned close back, and started to grow in a stove or warm pit. They are free growers, and require to be shifted into larger pots as their roots become numerous. They should have a free rich loamy soil, consisting of loam, peat, and leaf-mould, equal parts, with sand added if necessary. The young shoots in spring should be freely stopped to produce bushy growth. *L. Sellowiana* should have three parts sandy peat earth in the compost, and, though rested by comparative dryness and coolness in winter, ought not to be dried so much as the larger sorts. They do not require the temperature of the stove—that of an intermediate house suits them best. In warm and dry situations, where the soil is rather sandy, *L. Sellowiana* forms good beds in the flower garden, looking like a purple Verbena, and some of the larger orange-flowered species succeed under the same treatment in favourable summers. Cuttings root very readily in sand, planted in the usual way, and set in a hotbed. Young plants should be raised from cuttings during summer, to be shifted on for flowering the following spring.

LAPAGERIA. [Philesiaceæ.] A beautiful half-hardy twining perennial. The soil should be three parts peat earth to one of loam, and the situation should be cool, moist, and shady. The climate of a temperate fern house would be suit-

able for it. Increased sparingly by cuttings. *L. rosea*, flowers rose colour, in November.

LAPEYROUSIA. [Iridaceæ.] Beautiful bulbous plants, related to *Ixia* and *Gladiolus*, and sometimes called *Peyrousia* and *Meristostigma*. Soil, peat and loam. Increased by offsets.

LARDIZABALA. [Lardizabalaceæ.] Hardy or half-hardy evergreen climber. Soil, peat and loam. Increased by cuttings in sand in a gentle heat. *L. bitermata*, flowers purplish chocolate.

LARKSPUR. See **DELPHINIUM**.

LASIOPETALUM. [Byttneriaceæ.] Greenhouse evergreen shrubs. Soil, three parts sandy peat to one part light loam, well drained. Cuttings of half-ripened shoots, planted under bell-glasses in sand, will take root. (See **THOMASIA**.) *L. ferrugineum*, flowers white. *L. macrophyllum*, purple and green.

LASTHENIA. [Compositæ.] A simple-flowered hardy annual, useful as a dwarf free-blooming plant for small beds and the margins of large beds or borders. Common soil, rather poor. Increased by seeds.

LASTREA. BUCKLER FERN. [Polypodiaceæ.] An extensive genus of ferns, including stove, greenhouse, and hardy kinds. The hardy ones comprise some of the most common of our English species, which, from their free-growing habits and conspicuous size, are well suited for rockwork on a large scale, and their aspect, under favourable conditions, is very ornamental. The tropical kinds require a high temperature and a moist atmosphere, and those from temperate climates may be grown in a moist shady greenhouse or pit. When grown in pots they should have a loose turfy peat soil, mixed with equal parts of mellow loam, and made rather sandy. They are increased by division, or by sowing the spores as seeds. *L. acuminata*, greenhouse evergreen; *L. cristata*, hardy; *L. decomposita*, greenhouse evergreen; *L. decurrens*, greenhouse; *L. dilatata*, hardy; *L. eburnea*, stove; *L. elongata*, greenhouse; *L. filix-mas*, hardy; *L. faniseeii*, hardy evergreen; *L. glabella*, greenhouse evergreen; *L. Goldiana*, hardy; *L. hispida*, greenhouse evergreen; *L. Lancastriensis*, hardy; *L. marginalis*, hardy; *L. Novaboracensis*, hardy;

L. oreopteris, hardy; *L. pubescens*, greenhouse evergreen, *L. rigida*, hardy; *L. spinulosa*, hardy; *L. thelypteris*, hardy, are all cultivated.

LATHYRUS. [Leguminosæ, § Papilionaceæ.] A genus of showy hardy plants, annual and perennial, mostly climbers. The best of them is the Sweet Pea (*L. odoratus*), and there is not among the annuals a better nosegay flower than this; nor, now that there are many varieties, is there a more lively garden ornament. It has been attempted to grow the different coloured varieties separately, and a majority will sometimes prove like the parent, but they do not look so well any way as mixed. They may be sown in pots in a warmish frame in February for early bloom, and two months afterwards they may be sown in the borders of the open ground; others may be sown in May and June if a succession is desired. They grow in any good light soil, and all the attention they require is to be furnished with a few branches with spray stuck in the ground for them to cling to. If they are not allowed to seed, and the decayed blooms are removed as fast as they decline, the bloom will continue some time; but if they are allowed to swell their pods the bloom goes off much sooner. The perennials may be raised by seeds or by division, and merely require to be planted in the position they are to occupy permanently, and to have pea-stakes put to them annually for their branches to climb over.

LAUREL. See **LAURUS**

LAUREL CHERRY. See **CERASUS**.

LAURESTINUS. See **VIBURNUM**.

LAURUS. **LAUREL.** [Lauraceæ.] A genus of shrubs, mostly evergreen. The most important is the Bay Laurel (*L. nobilis*), a valuable hardy evergreen in the south of England, growing admirably in light dry loamy soils, and increased by cuttings at the end of summer under hand-lights on a shady border, or by layers, or by seeds. In the northern parts of the island it requires some protection. The varieties of the Bay tree are—*crispa*, with curled leaves; *latifolia*, with very broad leaves; *salicifolia*, with long narrow leaves; *undulata*, with waved leaves; and *variegata*, with curled leaves.

LAVANDULA **LAVENDER.** [Lamiaceæ.] Evergreen

shrubs, well known from the fragrance of their flowers. Some of the species require greenhouse protection. Sandy loam for the hardy kinds, and light loamy soil for the tender ones. Increased by cuttings.

LAVATERA. [Malvaceæ.] Hardy and half-hardy plants, of the Mallow tribe. The annuals should be sown in the borders in March, and are increased by seeds. The others are increased by seeds, and require to be planted in a sheltered situation, in which they are sometimes destroyed, sometimes uninjured by the winter. The shrubby kinds may also be propagated by cuttings. A light dry soil suits all of them. There are several species, but excepting the hardy kinds they are not of much interest, being coarse.

LAVENDER COTTON. See **SANTOLINA**.

LEADWORT. See **PLUMBAGO**.

LEDUM. **LABRADOR TEA.** [Ericaceæ.] Pretty hardy evergreen American plants. Soil, a rather sandy peat. Increased by layers. They are well suited for the margins of peat beds. See also **AMMYRSINE**.

LEMON. See **CITRUS**.

LEONOTIS. **LION'S EAR.** [Lamiaceæ.] A genus containing some annual species and other soft-wooded greenhouse shrubs. *L. leonurus*, one of the latter, and the most common in English gardens, is, when grown vigorously, very ornamental, rich orange-coloured flowers being produced in profusion in the axils of the leaves. Cuttings may be planted early in spring, and root readily in bottom heat. When rooted they should be potted into a light rich loamy soil, hardened off as soon as possible to the greenhouse temperature, continually stopped to induce bushiness of growth, and shifted as fast as the pots fill with roots, to give strength to the plants. By the beginning of May they may be transferred to cold frames, and during the summer they are quite as well grown exposed in the open air, so that care be taken that they do not become parched, which destroys their foliage. After the beginning of August the shoots should not be topped, but allowed to grow away for blooming; or, if stronger spikes of bloom are required, the stopping may be discontinued earlier. The object of stopping is, however, to produce a very bushy plant that may yield a large number

of flowering shoots. There is no difficulty in cultivating the plant, which, when established, should be grown in rich loam. With this and other similar free-growing plants it is better to raise young ones annually than to attempt to prune back or otherwise renovate the old specimens. They are chiefly to be preserved to furnish cuttings in the spring.

LEOPARD'S BANE. See **DORONICUM.**

LEPISMIUM. [Cactaceæ.] A small genus of minute-flowered cactaceous plants, requiring the treatment of *Ephyllum*, *Cereus*, &c.

LEPTOCERAS. [Orchidaceæ.] Greenhouse terrestrial orchids. Soil, peat, leaf-mould, and sand. Increased by division.

LEPTOSIPHON. [Polemoniaceæ.] Beautiful dwarf annuals, forming very pretty objects in clumps and beds, but not very long-lived; and, moreover, the blooms look untidy as soon as they begin to decline. The seeds may be sown in the open air in March or April, and should be sown thinly, because they then grow much more vigorously. They will grow in poor soil, and do as well as any of the annuals in the common borders; but to have them in perfection they should be grown in a very light rich soil, such as one-half very rotten cowdung mixed with good garden earth. In the beds of geometrical gardens, where they have to show a mass of flowers, they should be thinned very evenly to about two inches apart all over the space, because in beds which form parts of a connected figure there must not be vacancies, nor must the plants be too much drawn by being close together. In patches the least quantity is about what could be sown in a pot. Many adopt the very good plan of sowing annuals in pots, and bedding them out afterwards, for the sake of having the patches uniform.

LEPTOSPERMUM. **SOUTH SEA MYRTLE.** [Myrtaceæ.] Neat greenhouse evergreen shrubs, which may be grown exactly in the same manner as *Metrosideros*. Soil, peat and loam. Increased by cuttings under a bell-glass in sand, or by seeds. Some of them will succeed against a conservatory wall.

LESCHENAULTIA. [Goodeniaceæ.] Small evergreen greenhouse shrubs of a very ornamental character. To pro

pagate them strike cuttings in sand under a bell-glass with slight bottom heat. Pot them off as soon as they are well rooted into three-inch pots, in which they are to remain until the pots are filled with roots. The plants must have the ends of the shoots pinched off directly they fairly start for growth, which will induce side branches. In the summer months they must have all the air that can be given. When the pots get filled with roots shift to the next size larger, until the plants are as large as required; but this shifting must not take place between September and February, and during the winter season the plants must always be kept very close to the glass. The soil proper for the young plants is rather light peat earth, with a fifth part sand, forming a sandy peat of open texture. As they grow larger a little mellow loam may be added, commencing in the proportion of one-sixth, and never exceeding one-fourth of the whole. The roots of these plants are very delicate, and soon injured irrecoverably by either excess or lack of moisture, on which account the most perfect drainage of the pots is essential, as well as the utmost care in watering. The hot days of early summer are apt to do irreparable mischief, by drying up the soil between the periods at which watering is attended to. The safeguard is assiduous attention—not the constant use of small portions of water, which only moisten the surface, leaving the soil below quite parched, but a thorough watering when the soil is getting dry, not repeated until it is getting dry again, however long or short the time may be, and yet repeated before it does get dry. This is the whole secret of watering delicately-rooted plants. In winter any excess must be carefully avoided, as at that season it does not pass off readily. *L. biloba*, flowers blue, in June. *L. formosa*, flowers deep orange scarlet. *L. oblata*, flowers orange scarlet, in June. *L. splendens*, flowers bright scarlet.

LEUCADENDRON. [Proteaceæ.] Greenhouse evergreen shrubs, sometimes grown for their silvery foliage. Soil, sandy loam, with one-third fibrous peat. Increased by imported seeds, or by cuttings of the ripened shoots in sand under close glasses. *L. argenteum* is the Silver tree of the Cape colonists, so called from the whiteness of its silky leaves. There are a good many species.

LEUCHTENBERGIA. [Cactaceæ.] A greenhouse succulent, requiring the treatment of Echinocactus, Mammillaria, &c. Soil, sandy loam, well drained. Increased by cuttings or offshoots, artificially produced by destroying the crown of the plant.

LEUCOCORYNE. [Liliaceæ.] Beautiful little bulbs of the half-hardy class, allied to Brodiaea, and requiring the treatment of Ixias. Soil, sandy loam, peat, and leaf-mould, or well-decayed cowdung. Increased by offsets.

LEUCOJUM. **SNOWFLAKE.** [Amaryllidaceæ.] Pretty hardy bulbs, in foliage much like a Narcissus, in the flowers like a Snowdrop, as the name Snowflake suggests. They multiply by offsets in spring, and prefer sandy loam, though they may be planted in ordinary garden soil like common Narcissuses and Hyacinths.

LEUZEA. [Compositæ.] Hardy herbaceous purple-flowered perennials, allied to Serratula. Common soil. Increased by division or by seeds.

LEYCESTERIA. [Caprifoliaceæ.] Half-hardy sub-evergreen shrub. Sandy loam. Increased by cuttings of the young shoots in spring under a hand-glass, or by seeds. Suitable for a conservative wall. It is said to form a good cover for game. *L. formosa*, flowers white, with purple bracts.

LIATRIS. [Compositæ.] Elegant hardy or half-hardy herbaceous perennials of easy culture. Soil, sandy loam and peat. Increased by division. The half-hardy kinds require slight protection against wet in winter.

LIBERTIA. [Iridaceæ.] Beautiful Iris-like hardy or half-hardy perennials. Soil, two-thirds peat to one-third loam. Increased by division of the plants. They will often survive if planted close to the foot of a wall with a warm aspect. They are sometimes called *Renealmia*.

LIBOCEDRUS. [Coniferæ.] Beautiful hardy evergreen trees. Soil, sandy loam. Increased by seeds when obtainable; otherwise by grafting on the common Arbor-vitæ.

LIDBECKIA. [Compositæ.] Greenhouse evergreen shrub from the Cape of Good Hope, bearing yellow flowers. Soil, peat and loam. Increased by cuttings.

LIEBIGIA. [Gesneraceæ.] Stove sub-shrub. Soil, fibry

peat, with plenty of sand. Increased by cuttings. *L. speciosa*, flowers white and purple, in August.

LIGHTFOOTIA. [Campanulacæ.] Sub-shrubby greenhouse plants, allied to *Campanula* and *Roella*, bearing blue flowers, and natives of the Cape of Good Hope. Soil, sandy peat and loam. Increased by cuttings.

LIGULARIA. [Compositæ.] Hardy herbaceous perennials, allied to *Cineraria*. Common soil. Increased by division.

LIGUSTRUM. **PRIVET.** [Oleacæ.] Hardy evergreen or sub-evergreen shrubs. The common sort, *L. vulgare*, is a valuable hedge plant: the rarer sorts require a sheltered situation, and are very handsome plants for conservative walls. Privet hedges should be kept cut back very closely while young, and require to be clipped at least twice a year. Soil, sandy or chalky loam. Increased abundantly by seeds or cuttings; the rarer sorts by grafting on the common. *L. Japonicum*, *L. lucidum*, *L. spicatum*, *L. vulgare*, all flower white.

LILAC. **SYRINGA.**

LILIUM. **LILY.** [Liliacæ.] Beautiful hardy or half-hardy bulbous-rooted perennials, containing many distinct species, nearly, perhaps quite, all of which are sufficiently hardy to admit of their being cultivated in the open garden. The most beautiful of all is the *L. speciosum* and its superb varieties, *punctatum*, *roseum*, *rubrum*, *album*, &c., some of which are variegated as if rubies were stuck all over their petals. To cultivate these in pots a compost of one-half turfy peat, one-third turfy loam, and one-third decayed cow-dung, with sand one-sixth of the whole added, is suitable. Pot them in February; use large pots, and choose very strong double-crowned bulbs, two or three of which may go in a pot a foot in diameter; drain them well, and plant the bulbs three or four inches below the rims; place them in a cold frame, and cover them from frost and heavy rains, but otherwise give all the air possible. When the stems are five or six inches long fill up the pots with the compost, which will cause them to root up the covered part of their stems. As they rise too high for the frame remove them to the greenhouse, where they will flower in great perfection, and retain their beauty a long time, if shaded from the heat of the sun.

Plants are easily raised from seeds sown an inch apart in pans, and placed in heat. When up let them be removed to the greenhouse, and be undisturbed two seasons; they may then be placed in three-inch pots, and removed to larger as they grow until they flower. They are more generally multiplied by offsets, which form round the old roots, and such plants sooner reach a flowering size. These Japan Lilies are, however, sufficiently hardy to be grown in prepared beds in the open air, if the beds are covered with some light compost in winter; and grown thus they form fine autumn-blooming subjects. The hardy European and North Asian kinds grow generally well in a rich sandy loam; but the American, like the Japanese kinds, prefer a compost containing a considerable proportion of peat. They are all increased from offsets, which are generally produced abundantly, or by separating the scales of the bulbs and planting them as offsets. Some propagate from little bulb-buds which are formed in the axils of their leaves, and most of them may be multiplied from seeds when it is worth while to raise them by this more tedious process. The seeds should be sown as soon as ripe. The bulbs of Lilies should not be suffered to dry when they are taken out of the ground for transplantation. One of the most striking modern additions to this family is the Indian *L. giganteum*, a stately plant, eight to ten feet high, with large heart-shaped leaves. It may be grown as directed for *L. speciosum*, requiring that each bulb, if of flowering size, should have a separate pot of from twelve to eighteen inches in diameter. The species and varieties are endless.

LILY OF THE VALLEY. See CONVALLARIA.

LIMNANTHES. [Tropæolaceæ.] Hardy annuals of trailing habit, with neat but not showy flowers. They may be sown in the open borders in March, and again in April for succession. They are not very particular as to soil, but prefer a moist situation. They flower in about six weeks from the time of sowing.

LIMNOCHARIS. [Butomaceæ.] Stove aquatics, one of which, *L. Humboldtii*, succeeds in the open air in ponds or tanks, where the water is warmed by any artificial means. It bears beautiful yellow flowers all the summer. Propagated by its runners, which strike root on the muddy soil.

LINARIA. TOAD FLAX. [Scrophulariaceæ.] Hardy annual and perennial herbs, the numerous species of which display considerable diversity of character and habit. About half are annuals, and a few require protection. *L. alpina* and *L. tristis* are pretty minute plants for pot culture. *L. cymbalaria* and *L. pilosa* are suitable for rockwork, but the former is rather encroaching. They all grow best in a dryish sandy loam, and are propagated, the perennials by cuttings in summer or division of the plants in spring, and the annuals by seeds. Most of them are suitable for rockwork, especially the smaller growers. The half-hardy sorts should be grown in pots with the alpenes, and protected in cold frames in winter.

LINDLEYA. [Rosaceæ.] Greenhouse evergreen shrub. Soil, sandy loam. Increased by grafting on the Hawthorn, or by seeds, or sometimes by cuttings of the ripened shoots.

LINNÆA. [Caprifoliaceæ.] A hardy trailing subshrubby plant, commemorating the name of Linnæus. Soil, moist peat in a shady sheltered situation. Increased by separating portions of its rooting trailing stems.

LINUM. FLAX. [Linaceæ.] A showy genus, consisting principally of annual or perennial herbs, which grow freely in ordinary garden soil, preferring sandy loam, and are propagated by seeds, which are readily perfected. There are some shrubby greenhouse kinds, which should be grown in a compost of two parts peat and one of loam, with enough sand added to make it open, and are propagated by cuttings put in a hotbed. The common cultivated Flax is *L. usitatissimum*. *L. flavum* and *L. trigynum* are good; and the annual, *L. rubrum grandiflorum*, is a great favourite.

LION'S EAR. See **LEONOTIS**.

LISIANTHUS. See **EUSTOMA**.

LITHOSPERMUM. GROMWELL. [Boraginaceæ.] Hardy annuals and perennials. Dryish sandy loam. Increased by division, cuttings, or seeds.

LITOBROCHIA. [Polypodiaceæ.] A genus of ferns, principally stove species. Soil, turfy peat. Propagated by division and by spores. *L. macilenta* and *L. vespertilionis* are greenhouse.

LITTÆA. [Amaryllidaceæ.] Greenhouse evergreen perennial, allied to Agave, and often known in gardens as

Bonapartea. Soil, sandy turfy loam. Increased by suckers. *L. geminiflora*, flowers green, in August.

LITTONIA. [Melanthaceæ.] A beautiful greenhouse climber, tuberous-rooted, perennial. Soil, sandy loam and peat. Division. *L. modesta*, flowers brilliant orange, in April.

LIVISTONIA. [Palmaceæ.] Greenhouse Palms. Rich sandy loam. Propagated by seeds. The principal are *L. humilis* and *L. inermis*.

LLOYDIA. [Liliaceæ.] Hardy perennial. Dry sandy loam. Division. *L. striata* is white striped.

LOASA. [Loasaceæ.] Hardy annuals, with pretty flowers, the stems and leaves invested with poisonous stinging hairs. They may be sown in the borders about the middle of April, and again, if necessary, at the end of May. Increased by seeds.

LOBELIA. [Lobeliaceæ.] An extensive genus of very showy plants, comprising stove, greenhouse, and hardy species, and consisting principally of perennial herbs, with a few annuals and biennials. Peat and loam in equal quantities, with a sixth part sand, form a good compost for the smaller and more delicate species. The strong-growing perennial kinds flourish best in rich moist loam, but they must be wintered in a dry cold frame. The annuals should be raised in a slight heat in March, and pricked off into small pots, hardened, and planted out in May. They are the better for a liberal mixture of peat earth. The shrubby and sub-shrubby kinds are increased by cuttings planted in sand, and put in a hotbed; the perennials by division in early spring, the shoots being first excited into growth in a mild heat, and then separated into single pots of the smallest size, and put in a warm frame until they are well established, when they may be hardened to bear the open air. For blooming in pots the herbaceous kinds must be shifted into larger pots progressively. A very rich loamy compost should be used, with abundance of moisture. The more tender of these are best kept nearly dry under a greenhouse stage during winter, being very liable to rot from exposure to damp. *L. gracilis* is a dwarf kind, bearing a profusion of small blue flowers throughout the summer if treated like a half-hardy annual,

and planted in the open ground in May. Of the same habit are the *L. erinus* and its varieties, *grandiflora*, *compacta*, and *L. decumbens*, perennials employed for the summer decoration of flower gardens, all bearing blue flowers in profusion, and suitable, from their dwarf habit, for planting close by the edges of flower-beds and borders. The perennial kinds are annually augmented by cross-bred varieties, which are constantly giving place to new variations. The New Holland perennial species generally are very beautiful plants, most conveniently grown as annuals, and suitable either for pots or beds. Raised in autumn, and wintered near the glass in a cool greenhouse, they make beautiful pot plants. *L. speciosa* is the best.

LÆSELIA. See **HOITZIA**.

LOMARIA. [Polypodiaceæ.] A genus of ferns, comprising several hardy and greenhouse species. Turfy peat soil. Increased by division or by spores. *L. alpina*, hardy evergreen. *L. auriculata*, greenhouse evergreen. *L. Capensis*, greenhouse evergreen. *L. Chilensis*, evergreen. *L. Gilliesii*, greenhouse evergreen. *L. lanceolata*, greenhouse evergreen. *L. Magellanica*, half-hardy evergreen. *L. nuda*, greenhouse evergreen. *L. Patersoni*, greenhouse evergreen. *L. procera*, greenhouse evergreen.

LONDON PRIDE. See **SAXIFRAGA**.

LONICERA. **HONEYSUCKLE.** [Caprifoliaceæ.] Hardy or half-hardy twining or bushy sub-evergreen or deciduous shrubs. Honeysuckles are especial favourites in gardens, in consequence of their delightful odour; indeed, in their exquisite fragrance, abundant bloom, and obedience to almost every kind of treatment and training, they have hardly a superior among all the hardy shrubs, unless it be in the Rose. They are beautiful plants for covering a summer-house, or climbing over a doorway or verandah, and by growing a few different sorts flowers may be had in succession for several months. They grow in any good garden soil, preferring, however, rich light loam, and are propagated by suckers, by layers in autumn, or cuttings: they may also be raised from seeds, for berries are borne abundantly. The plants may be pruned moderately close, or allowed to ramble without check or hinderance, and in either case will produce bloom in due season, the quantity

of flowers depending on the quantity of branches to bear them. One of the prettiest modes of growing the most desirable varieties is to support the main stems until they are the height required, and then to let them form a head like a standard tree, which they will do at five or ten feet high equally well, and require nothing but trimming to the form desired, so as to check the shoots when they are prone to ramble too far; and, in order to fill out any vacancies, superfluous shoots produced in one part may be trained so as to make good the deficiencies. The flowers of the evergreen Trumpet Honeysuckle (*L. sempervirens*), though very beautiful, are inodorous. There are many varieties, all very fragrant, but not very different.

LOOSESTRIFE. See *LYSIMACHIA*.

LOPEZIA. [Onagraceæ.] Hardy annuals of straggling growth, forming a pretty mass when in flower. They may be sown in March, along with the half-hardy kinds, for transplantation, and again in April where they are intended to bloom. Common soil. Seeds. The perennials propagated by cuttings in summer. A greenhouse species, *L. macrophylla*, is a showy plant, and requires the treatment of *Fuchsia fulgens*, having, like it, fleshy roots.

LOPHOSPERMUM. [Scrophulariaceæ.] Showy evergreen greenhouse climbers, adapted also for planting in the flower garden during the summer season, and for covering trellis-work. These plants all bloom pretty freely throughout the summer. They ripen seeds freely in fine seasons, from which they are best propagated: they also strike readily from cuttings. Planted out for the summer they flourish in ordinarily good garden soil; but if kept in pots, being large-growing plants, they must have tolerably large pots of good rich loamy soil, which, as the plants become large and begin blooming, may be aided by applications of dilute liquid manure, or by spreading a layer of dung on the surface, to be washed in by the ordinary waterings. The old plants may be kept through the winter in a greenhouse or protected frame if their fleshy roots are kept tolerably dry. *L. scandens* is a pretty plant for planting around the edges of raised rustic or other flower-baskets, balconies, or similar places. See also *RHODOCHITON*.

LOQUAT. See ERIOBOTRYA.

LOTUS. BIRD'S-FOOT TREFOIL. [Leguminosæ, § Papilionaceæ.] A genus containing many hardy annuals and perennials, and some few greenhouse sub-shrubs. The most ornamental for a garden is *L. corniculatus flore-pleno*, a dwarf trailing plant, whose showy bright yellow double flowers are borne profusely during a portion of the summer. This may either be planted on rockwork or in the flower-border, but when put in the latter situation two or three moderate-sized stones should be laid about it, over which its branches may trail. *L. Jacobæus* is a remarkable greenhouse sub-shrubby plant, rather delicate, or what is called a "miffy," being liable to damp off in winter. It is increased by cuttings, which should be taken early in summer, and potted off, so as to be well established before winter. They should be kept airy, and very carefully watered. If for pot culture they must be shifted in spring, using a light porous loamy compost; if for the flower garden, in which they succeed well in a sheltered situation and a fine season, they must be gradually hardened, and planted out by the end of May. The majority are of little horticultural value.

LOUSEWORT. See PEDICULARIS.

LOVE-LIES-BLEEDING. See AMARANTHUS CAUDATUS.

LUCULIA. [Cinchonaceæ.] Very ornamental warm greenhouse shrubs. They are beautiful and fragrant plants, and grow exceedingly well by the aid of a vinery or moist stove, though they succeed in a warm greenhouse or conservatory. In aspect they are not very unlike Hydrangeas. Cuttings may be taken during summer from the ends of the shoots that have no bloom; and these, rooted in sand under a bell-glass, with the aid of a common hotbed, of which the violent heat has gone off, should be potted, when well rooted, into four-inch pots, and kept in a close pit or frame. When established they may be kept growing in a temperature of about 60° until one growth is completed, when they should be kept cooler. If the plants make a decided shoot upwards the heart may be pinched out to cause lateral branches. In the following spring, if the pot is well filled with roots, change the plant to a six-inch pot, and thus continue to give two or three shifts annually, if the roots are freely developed,

until the plant is in as large a pot as can be accommodated. After this another mode of treatment must be adopted. Allow the plant to bloom and go to rest for two or three months, keeping it rather dry and cool; then take it out of the pot, shake the soil from the roots, prune the latter more or less according to their number, repot in a pot as small as will hold the roots, plunge in a mild hotbed with a gentle top heat, not exceeding 60°, and shift as required. The soil should be porous fibry peat and loam, with plenty of sand. The best results, however, are obtained by planting healthy vigorous plants into the border of a conservatory. *L. gratisima*, flowers pink. *L. Pinciana*, flowers blush.

LUNGWORT. See **PULMONARIA.**

LUPINUS. **LUPINE.** [Leguminosæ, § Papilionaceæ.] An extensive genus, comprising annuals, perennial herbs, and some few sub-shrubby species, nearly all hardy, easily cultivated, and possessing considerable general resemblance, so that in a limited garden but a few of the kinds are required. The perennials, *L. polyphyllus* and *L. grandifolius*, throw up long pyramidal closely-set spikes of flowers, from two to four feet in height, according to the strength of the plant. The Lupines will all grow freely in good garden soil, which they very much impoverish. The annuals should be sown in March and April where they are to flower. The perennials are increased by parting the roots, but much more freely by seeds, which ripen abundantly, and may be sown in June, in which case the strongest of the plants will blossom the following year. The half-hardy sub-shrubby species are also best raised from seeds, and require to be wintered in a dry protected frame, and planted out about May. *L. mutabilis* and its variety *Cruikshankii* form beautiful objects if raised in August, wintered singly in small pots in a day frame or airy greenhouse shelf, shifted about March, and kept in a cold frame till the end of May, and then planted out in good soil in the flower garden. All the biennials may be treated as annuals.

LYCHNIS. [Caryophyllaceæ.] Hardy herbaceous perennials, some of which are very ornamental. This may be said of *L. Chalcedonica*, commonly called Scarlet Lychnis, of which both double and single have been known in gardens for many years, and are as common as the Stock or the Sun-

flower. They require to be frequently transplanted and divided, giving them fresh good compost—rich sandy loam—at each planting, or they soon wear out; and this is more particularly the case with the double than single-flowered varieties: it should be done in spring. They develop a dense head of brilliant scarlet blooms at the top of the stem. *L. fulgens* and *L. coronata* are smaller, but very showy plants. their roots require to be protected from wet in winter, either by taking them up in autumn, potting them, and placing them in a dry frame, or by covering the ground about them early in autumn with some wet-repelling material, as dry sawdust, asphalted felt, &c. The dwarf hardy kinds are proper for dry rockwork. They are propagated by parting the roots, and also from seeds, which should be sown in pans or on prepared beds about May, merely thinning out the young plants until they are large enough to transplant, when they may be placed in nursery-beds at nine inches apart, where they remain till they are strong enough to produce blossoms. See also AGROSTEMMA and VISCARIA.

LYCIUM. BOX THORN. [Solanaceæ.] Hardy rambling shrubby plants, requiring to be trained against a wall or pillar, or supported by poles. They are free flowering, but not showy, and rather adapted, from their free growth, for covering arbours and unsightly buildings than desirable for their ornamental properties. *L. Europæum* is especially useful for this purpose, rapidly covering walls or buildings, and growing to a considerable height, producing long flail-like shoots, and an abundance of suckers. These long shoots, if produced from the higher parts of the plant, will assume a drooping position, and in the second year will bear a profusion of its changeable veiny purple-lilac flowers, so that a succession of such branches should be annually maintained. Root suckers ought to be destroyed continually. They are all indifferent as to soil, provided it is moderately well drained and porous, and are increased without difficulty either by cuttings, by layers, or by suckers.

LYCOPODIUM. CLUB MOSS. [Lycopodiaceæ.] Evergreen moss-like perennial herbs. Damp peat soil. Increased by careful division. They mostly require shade, seclusion, and abundant moisture. The principal are *L. alpinum*, hardy;

L. annotinum, *L. clavatum*, *L. complanatum*, *L. dendroideum*, and *L. selago*.

LYCORIS. [Amaryllidaceæ.] Pretty hardy bulbs. Deep sandy loam. Propagated by division.

LYGODIUM. SNAKE'S TONGUE. [Osmundaceæ.] Elegant climbing ferns of easy culture. Soil, turfy peat, sand, and loam. Increased by division. The species mostly require stove heat; but there are *L. articulatum*, greenhouse climbing, and *L. palmatum*, hardy climbing.

LYONIA. [Ericaceæ.] Hardy ornamental shrubs, related to Andromeda. Sandy peat soil rather damp. Increased by layers in a damp peat bed, or by seeds, which should be raised in a frame.

LYPERIA. [Scrophulariaceæ.] Pretty greenhouse evergreen sub-shrubs. Soil, sandy loam and peat. Increased by cuttings in a gentle hotbed.

LYSIMACHIA. LOOSESTRIFE. [Primulaceæ.] Hardy perennials of the easiest culture, of small importance in a flower garden. The genus contains a few half-hardy sub-shrubby species, which are increased by cuttings in a gentle hotbed in sand. *L. nummularia*, our native Moneywort, is a pretty trailing plant, adapted for damp rockwork, or for planting in a pot for the side of a shady window. Sandy soil. All multiplied by division. *L. Leschenaultia* is pretty.

LYSINEMA. [Epacridaceæ.] Handsome rigid evergreen greenhouse shrubs, scarcely different from Epacris, and requiring exactly similar management. Soil, sandy peat. Propagated by cuttings in sand under bell-glasses.

LYTHRUM. [Lythraceæ.] Hardy annuals or perennials, the former of little interest; the latter ornamental, often thriving in damp and even wet situations. *L. alatum* is a showy half-hardy plant, with long, slender, scarcely branched stems, bearing purple flowers throughout the summer, and not unsuited for a good-sized bed. The hardy perennials grow in ordinary soil, and are increased by division; the half-hardy one grows from cuttings, and should be potted in a soil of three parts peat to one of loam. The annuals may be sown in the open border in March.

MACARTNEY ROSE. See ROSA BRACTEATA.

MACHÆRANTHERA. DAGGER FLOWER. [Compo-

sitæ.] A pretty half-hardy, sub-shrubby, probably biennial plant, useful for the flower garden. Soil, sandy loam. Propagated by cuttings under a hand-glass in summer. *M. tanacetifolia*, flowers purple.

MACLEANIA. [Vacciniaceæ.] Handsome warm greenhouse evergreen shrubs. Soil, sandy loam and fibry peat. Propagated by cuttings in sand under a glass. They require a mild winter temperature, rather higher than in an ordinary greenhouse.

MACLEAYA. [Papaveraceæ.] Hardy herbaceous perennials. Good garden soil. Increased by division in spring.

MACLURA. [Moraceæ.] This small genus contains one hardy species, *M. aurantiaca*, which, under the name of the Osage Orange, is much used for hedges in some parts of North America, there taking the place of our Hawthorns. It requires a dry warm soil. Increased by layers or by cuttings of the roots.

MADARIA. [Compositæ.] Hardy annuals, showy, but rather commonplace in their appearance: their golden-coloured flowers have a ring of brownish blotches around the central disc. They may be sown in frames for transplantation in March, and in the open ground in April and May, and are increased by seeds.

MAGNOLIA. [Magnoliaceæ.] Noble and striking hardy shrubs and small trees, some among the handsomest of evergreens, others deciduous, and all beautiful as flowering plants. The soil for these plants should be deep and good, of open texture, neither subject to parching nor liable to excessive wet at any season. The Magnolias all grow finely in peat earth, but this is not essential to them. They are greatly benefited, however, when planted in a young state, by having a bushel or so of good compost placed about their roots: this compost may be of equal parts light turfy loam and peat. Layering is the most usual mode of propagating the Magnolia, the layers being put down in autumn, and requiring a couple of seasons to get well established. Many of the species do not transplant well except when quite young, unless they are kept in pots. On this account it is usual to keep them in pots, and of all the choicer kinds no plants should be chosen whose roots are not so protected; but when this has been the

case the roots must be carefully uncoiled, and spread out in straight lines when they are permanently planted. Seeds may be often obtained from America, and the plants raised from them are the most vigorous, but do not blossom so early. They should be sown in sandy peat, placed in a warm frame, potted as they appear, and kept for several years in a cold pit during winter until they get well established. The arboreous species are only suited for large gardens. *M. grandiflora* and its varieties are evergreen trees, which should find a place in every garden: they are usually trained against walls, which they cover with a mantle of large glossy laurel-like leaves, decorated from June to September with large white fragrant cup-shaped blossoms, looking like large eggs when in the bud state. Wherever there is a shrubbery or a clump of peat-earth shrubs, one or two of the hardy deciduous species should also be grown for their large fragrant blossoms in the early spring months. *M. fuscata*, a small evergreen, something like a Camellia in its foliage, is a greenhouse plant, and in May bears blossoms exquisitely fragrant, though not very conspicuous. This should be potted in turfy loam and peat, and is increased by grafting or inarching on the commoner kinds, as *M. obovata*, which mode of propagation is also resorted to with the other weaker and more tender kinds. *M. conspicua*, hardy deciduous tree. *M. fuscata*, greenhouse evergreen shrub, flowers brown. *M. glauca*, hardy deciduous tree. *M. grandiflora*, hardy evergreen tree. Of this there are several varieties, among which that known as *Exmouthiana* is the most desirable. *M. macrophylla*, hardy deciduous tree, flowers white and purple. *M. purpurea*, hardy deciduous shrub, flowers purple. *M. tripetala*, hardy deciduous tree. Those not deciduous otherwise bloom white.

MAHERNIA. [Byttneriaceæ.] Small soft-wooded greenhouse sub-shrubs. They are raised from cuttings planted in sand, and placed in a moderate hotbed. The plants grow well in a light compost of loam, peat, and leaf-mould in equal parts, the texture opened by the addition of a little sand. They are liable to grow straggling, and hence to produce a well-formed plant frequent resort must be had to the plan of topping the young shoots while in a growing state, to cause them to develope lateral growth: the plant form pretty low

pyramids if a shoot or two are supported in an erect position in the centre, and the laterals treated in the manner described. They should frequently be renewed from cuttings, as a large plant can be obtained in a single season, and young healthy plants are always the most vigorous. Their spirally-told blossoms are very curious.

MAHONIA. See BERBERIS.

MAIDEN-HAIR FERN. See ADIANTUM.

MAIDEN-HAIR TREE. See SALISBURIA.

MALCOMIA. [Cruciferae.] Hardy annuals, of which one species, *M. maritima*, the Virginian Stock, is a favourite dwarf ornament for the flower-border, very easily grown, but not durable: in good-sized patches it forms a showy mass of simple flowers. If sown by the middle of March it will, in favourable seasons, be in bloom early in May; but to have a good succession of flowers it ought to be sown monthly from March to August. It is quite hardy, and forms a pretty edging plant for large borders. The other species may be similarly cultivated. The best are *M. maritima*, *M. litorea*, *M. incrassata*, and *M. arenaria*.

MALESHERBIA. [Malesherbiaceae.] Curious and pretty greenhouse shrubs and annuals. Soil, two parts peat to one part loam and one of sand. The annuals are increased by seeds sown in a warm frame in March, pricked off, potted, and shifted as required, and transferred to the greenhouse when established. The shrubby kinds may also be increased by seeds, and by cuttings of the young shoots in sand in a hotbed. *M. fasciculata*, flowers white. *M. linearifolia*, flowers blue. *M. thyrsiflora*, flowers yellow.

MALOPE. [Malvaceae.] Showy Mallow-like annuals of very simple culture. The seeds may be sown in March, and again in April, in the open border; the plants to be thinned out when large enough, leaving about three of the strongest in a patch. To get plants to bloom earlier than usual they may be sown in pots along with half-hardy annuals, and planted out as early in May as the season will admit. *M. malacoides*, flowers purple. *M. trifida*, flowers crimson. Of this there is a variety with white flowers called *alba*, and another with larger flowers called *grandiflora*.

MALVA. MALLOW. [Malvaceae.] A large genus, of

which the majority are weedy: a few, however, such as *moschata*, *Munroana*, and *purpurata*, are ornamental. The half-hardy sorts will grow during summer in the borders in good garden soil, or in a mixture of loam, leaf-mould, and sand, and are increased by cuttings in sand in a frame during summer. The greenhouse kinds also propagate by cuttings, and grow in similar soil. The hardy annuals may be sown in patches in the open border in March and April.

MAMMILLARIA. NIPPLE CACTUS. [Cactaceæ.] An extensive group of very interesting lumpish spiny succulent plants, closely allied to *Echinocactus*, and requiring in every respect similar treatment; but the species are many of them taller and of more cylindrical form than in that genus, and, instead of having a ribbed surface, it is in this family disposed in more or less prominent tubercles, or teat-like protrusions, each terminated by a cluster of spines. In spring they should be repotted or dressed in a compost of loam, sand, old dry cowdung, and brick rubbish, and put in a temperature of from 70° to 80°, with abundant atmospheric moisture, but little water to the roots until they are making free growth. By midsummer the supply must be reduced, the plants being exposed to strong sun heat, and in autumn and winter they must be kept nearly dry. Like the *Echinocacti*, they are all alike desirable where the curiosities of vegetation are held in esteem. There are upwards of seventy reputed species, the enumeration of which would be tedious and unprofitable, in consequence of the close similarity which would be presented by any general description. The flowers are not showy.

MANDEVILLA. [Apocynaceæ.] A greenhouse evergreen climbing shrub, and one of the best that is grown, if it be planted out in a warm greenhouse or conservatory, and provided it is well ripened in autumn, rested in winter, and fairly excited in spring. The blossoms are deliciously fragrant. The proper compost consists of half peat and half loam in a rough turfy state, and of this the plant must have a good bulk if it is to make a healthy and satisfactory growth. The leading branches must be trained carefully as they grow; and in winter, when the growth is over and well ripened, they may be pruned in rather closely. Propagated by cuttings of

the short side-shoots planted in sand, and placed where they have a gentle bottom heat. *M. suaveolens*, flowers white, in June.

MANDRAGORA. MANDRAKE. [Solanaceæ.] Hardy herbaceous perennials, requiring a dry deep soil, and protection against wet as well as severe frosts in winter. Increased by seeds—more surely by division.

MANETTIA. [Cinchonaceæ.] Beautiful stove climbers, bearing a profusion of tubular blossoms of bright showy colours. They are propagated by cuttings of the young shoots planted in sand, and placed in a hotbed under a bell-glass. When rooted they should be potted singly into small pots, and grown on in a stove, shifting them as often as the roots become numerous among the soil. When they begin to grow freely they must have trellises or some support for their branches. It is a good plan to put a long upright stake for the first year, as the shoots can be returned downwards, and back again if necessary. In the spring, after a moderately dry season of rest, the plants must be potted into pots large enough to bloom them in, as they are not easily shifted after permanent trellises are fixed. The soil should be rough and turfy, composed of peat, loam, and leaf-soil in equal parts, intermixed with a considerable proportion of sand. Good drainage is essential. The stems should be cut back to the mature wood, from which vigorous branches will be produced as soon as the roots begin to extend among the soil. Trellises of cylindrical form are the most suitable, around which the branches are to be trained spirally until the space is covered, when the points of the shoots must be allowed a little liberty. Old plants must be rested and repotted annually. They are among the prettiest of pot climbers for the stove.

MANULEA. [Scrophulariaceæ.] Greenhouse sub-shrub. Soil, sandy peat and loam. Propagated by cuttings in sand under a bell-glass. *M. rubra*, flowers red. *M. viscosa*, flowers pink.

MAPLE. See ACER.

MARIANTHUS. [Pittosporaceæ.] Beautiful twining greenhouse shrubs. Soil, rough turfy loam and peat in equal proportions, made rather sandy. Propagated by cuttings in

sand under a bell-glass. They are admirable plants for training on cylindrical trellises. *M. cœruleo-punctatus*, flowers greyish blue.

MARICA. [Iridaceæ.] Warm greenhouse evergreen herbaceous perennials, with very beautiful but ephemeral flowers. Soil, loam and peat of open texture. Increased by division, or by planting adventitious offshoots or cuttings.

MARIGOLD. See CALENDULA.

MARJORAM. See ORIGANUM.

MARSH MALLOW. See ALTHÆA.

MARSH MARIGOLD. See CALTHA.

MARTAGON. See LILIUM.

MARTYNIA. [Pedaliaceæ.] Greenhouse or half-hardy annuals, with a somewhat coarse habit and showy flowers. The seeds should be sown in a hotbed in March, and the young plants potted singly, and kept growing in heat near the glass in the way Balsams are managed. As they grow they must be shifted, and hardened off to bloom in a cool stove or greenhouse or frame. *M. fragrans*, the best of the species, will also succeed in a sheltered place, planted out for the summer. They require rich light soil.

MARVEL OF PERU. See MIRABILIS.

MATHIOLA. Stock. [Cruciferæ.] A favourite genus of hardy plants, among the sweetest and gayest of garden flowers of which one familiar species, *M. annua*, the Ten-week Stock, is an annual; another, *M. simplicicaulis*, the Brompton or Giant Stock, is a biennial; and *M. incana*, the Queen Stock, is a sub-shrubby kind, though best treated as a biennial. The varieties of these, especially of the first, are very numerous, and, as imported from Germany, very fine. Of the ordinary hoary-leaved Ten-week or annual Stock there are a score or more different colours, which the German seed-growers save distinct. Of the Ten-week Stock having smooth green or Wallflower-like leaves there are also many varieties of colour; and, besides these, there are variations of habit which have become perpetuated by careful seed-saving. The biennial Stock, that is, those sown one year to bloom the next, varies as much as the annual in regard to habit, but not in respect to colour. The Brompton and the Queen Stock are well-known distinctions in this class. When once posses-

sion is obtained of a good strain of Stock, which produces but few single-flowered ones out of a great number, there is not much difficulty in keeping it, for the Stock has a strong disposition to go double; and when a few single ones only escape this tendency they may be expected to yield seed equally disposed to produce double flowers. On the other hand, if we remove a single Stock from among hundreds of others equally single, and of a batch or strain which has no disposition to go double, that single one would not yield in its progeny one more double variety for being planted among a thousand double ones; so that the common advice to save seed from such single-flowered plants as grow near many double ones is good for nothing, unless the single ones come from the same "strain," and have the same disposition as the double ones themselves, that is to say, are of the same progeny. In other words, the planting of a thousand double Stocks around a single one does not change the nature of its seed: but the tendency to doubleness is an inherent property brought about in certain plants or batches of plants by careful culture and seed-saving, as all other floral improvements have been. and is not shared by other plants or batches of plants, though of the very same kind, which have not been so influenced. The single-flowered plants only bear seed. The tendency to doubleness is sometimes indicated by the production of flowers with more than the usual number of petals (four), and when this is observed it may be taken as a favourable indication, and such blossoms should be marked, and their seed kept separately. The Ten-week Stocks should be sown in March, April, and May, for summer and autumn-blooming plants: they may be sown in boxes, in a frame, or on prepared sheltered beds. When up give plenty of air, and no more water than is just enough to keep them from flagging. When they have formed six good leaves plant them out in a bed of rich soil, or pot them off in rich soil, and give plenty of water until they bloom. For earlier spring bloom they as well as what is called the Intermediate Stock, should be sown in August and September, and wintered in pots in dry cold frames. The Brompton and Queen Stocks may be sown in the open border thinly, in June, and the plants, when large enough, planted out in sheltered places where they are to

bloom; or some of them may be potted and kept in frames during winter, to be planted out in spring. They will bloom the following May and June. Cuttings may be struck from these two-year Stocks, when they are fine enough to be worth it, under a glass in the common borders like Wall-flowers. *M. tristis*, the night-smelling Stock, is a greenhouse shrub, and though not showy, the flowers being of a dull livid colour, yet it is desirable on account of its powerful vespertine fragrance. This grows in a light, sandy, loamy compost, and is propagated by cuttings. There is no limit to the varieties.

MATRICARIA. [Compositæ.] Weedy hardy annuals for the most part, with single white Daisy-like flowers. The only exception worth cultivating is a double-flowered variety of *M. chamomilla*, called *grandiflora*, which, as it does not bear seed, may, if frequently renewed, be continued as a perennial: its double white blossoms render it deserving of being grown in a mixed border. The young shoots should be taken off from near the root, and treated like cuttings. Common garden soil.

MAURANDYA. [Scrophulariaceæ.] Ornamental greenhouse climbers of slender habit, and also suitable for planting in the open air during the summer, for the purpose of covering wire fences, pillars, &c. They are best raised from seeds, which, to insure strong blooming plants, should be sown about June, and the young plants potted singly, and kept in small pots during winter in a greenhouse. These, if shifted into larger pots in February or March, will be strong and vigorous by the planting-out time—May. For the greenhouse they require shifting into large pots of rich soil, of which the basis is sandy loam, and training about pillars, short rafters, or suitable trellises. They grow to a considerable size when their roots have free scope. They may be increased from cuttings, which root readily in sand in a hotbed. *M. Barclayana*, greenhouse climbing perennial, flowers purple, or rose-coloured, or white, all summer.

MEADOW RUE. See **THALICTRUM.**

MEADOW SAFFRON. See **COLCHICUM.**

MECONOPSIS. [Papaveraceæ.] Hardy Poppy-like herbaceous perennials. Soil, sandy loam. Increased by seeds sown in May, or by division.

MELALEUCA. [Myrtaceæ.] Showy evergreen greenhouse shrubs, remarkable for the beauty of their anther-threads, which form the conspicuous part of their blossoms. They are propagated by cuttings of the firm young shoots in sand under a bell-glass, and should be grown in a mixture of loam, peat, and sand, at first using small pots, and shifting them on into larger ones as they grow. The shoots must be kept freely topped while the plants are young, to produce a bushy compact growth. *Metrosideros*, *Calothamnus*, and *Calistemon* are genera closely related to this.

MELASTOMA. [Melastomaceæ.] Fine evergreen shrubs, mostly vigorous in habit, generally stove plants, but in some cases requiring the extra heat of a hothouse only for a few months in the spring. They may therefore be grown in a frame, and transferred to the greenhouse after its usual occupants are placed elsewhere, in the same way as tender annuals are generally accommodated. They strike freely from cuttings, and only require to be shifted on into larger pots as they get full of roots. Cuttings taken very early in spring might be bloomed during summer. In winter they require a dryish atmosphere, something warmer than a greenhouse. The soil should be equal parts of good loam and peat earth, with plenty of sand. *M. corymbosa* and *M. Malabathrica*, flower rose; and *M. gigantea*, pink.

MELIA. BREAD TREE. [Meliaceæ.] A genus of handsome shrubby plants, of which some will succeed in a greenhouse or against a wall in the open garden. Soil, loam and peat. Increased by seeds, or by cuttings of the ripened shoots under glass.

MELIANTHUS. HONEY FLOWER. [Zygophyllaceæ.] Greenhouse or half-hardy evergreens, with striking foliage. Rich light loamy soil. Increased by suckers or by cuttings of the young shoots. These plants succeed against wall in the climate of London—spring up from the roots annually.

MELICHRUS. [Epacridaceæ.] Greenhouse evergreen shrubs. Soil, sandy peat. Increased by cuttings as *Epacris*.

MELISSA. BALM. [Lamiaceæ.] Hardy herbaceous perennials. Common soil. Increased by division.

MELITTIS. BASTARD BALM. [Lamiaceæ.] Hardy herba-

ceous perennials of easy culture. Propagated by division, and growing in ordinary garden soil. They are rather pretty.

MELOCACTUS. MELON THISTLE CACTUS. [Cactaceæ.] A small group of the Cactus family, with the ribbed spiny character of Echinocactus, but usually growing much larger, especially in the case of *M. communis*, the Turk's Cap, which sometimes measures as much as two feet in diameter. They are crowned at top by a curious woolly tuft, from among which the small flowers are protruded. Large plants of this are sometimes imported, but they are difficult to preserve alive, in consequence of the injuries they sustain in their transit. They must be treated like the Echinocacti. Soil, loam and lime rubbish. Increased by seeds, or by offshoots treated as cuttings; the latter should be partially dried before being planted.

MENIOCUS. [Cruciferae.] Hardy annual. Common soil. Seeds. *M. linifolius*, flowers yellow.

MENISCIUM. [Polypodiaceæ.] Interesting evergreen ferns, of which the greater number require a stove. Soil, turfy peat, loam, and sand. Increased by division or by sowing the spores. *M. simplex* is a warm greenhouse fern.

MENISPERMUM. MOONSEED. [Menispermaceæ.] The genus contains one or two hardy deciduous climbers, with good-looking foliage, but not otherwise ornamental. The principal are *M. Canadense*, *M. Carolinum*, otherwise called *Cocculus Carolinus*, and *M. Dahuricum*.

MENTZELIA. [Loasaceæ.] Half-hardy herbaceous perennials. Soil, sandy loam and peat. Increased by cuttings in sand in a hotbed, or by seeds in a slight heat.

MENYANTHES. BUCKBEAN. [Gentianaceæ.] Hardy aquatic perennial. Moist boggy soil, or in shallow water. Increased by division. *M. trifoliata*, flowers white and pink.

MENZIESIA. [Ericaceæ.] Pretty dwarf hardy deciduous shrubs. Sandy peat soil. Increased by layers or by cuttings under a hand-light. *M. ferruginea*, flowers rust colour. *M. globularis*, flowers yellowish brown.

MERENDERA. [Melanthaceæ.] Hardy Crocus-like bulb. Soil, peat and loam. Increased by offsets.

MESEMBRYANTHEMUM. FIG MARIGOLD. [Mesembryaceæ.] A very extensive family of greenhouse succulent plants, the greater number being of shrubby habit. They

are increased by cuttings, which should be a little dried before planting, and inserted in sand, and set on a shelf in the greenhouse. The best compost for them is loam, intermixed with sand and broken potsherds to keep it porous. Some of them are very handsome when in perfection, but they do not assort well with other plants. Being of easy management, scarcely requiring watering except in the height of summer, and but seldom needing to be repotted, they are well suited for window cultivation, and especially for hot sunny windows. *M. crystallinum*, the common Ice plant, is a half-hardy annual species, interesting only on account of its sparkling hyaline leaves. *M. pyropæum*, or *tricolor*, is a beautiful greenhouse annual, which should be sown in the hot frame in February, potted off as soon as large enough to handle, three or four in a pot, and grown on in a frame until well established, when it may be removed for blooming to the greenhouse. Many of the species of *Mesembryanthemum* are interesting objects, on account of their peculiar habit and the form of their foliage.

METROSIDEROS. [Myrtaceæ.] Greenhouse evergreen shrubs, requiring the same treatment as *Melaleuca*, to which they are allied. Soil, loam and peat in equal parts, with sand. Increased by cuttings in sand under a bell-glass. The species sometimes succeed against a conservative wall.

MEXICAN LILY. See *HIPPEASTRUM REGINUM*.

MEZEREON. See *DAPHNE*.

MIGNONETTE. See *RESEDA*.

MILFOIL. See *ACHILLEA*.

MILK VETCH. See *ASTRAGALUS*.

MILKWORT. See *POLYGALA*.

MILLA. [Liliaceæ.] Half-hardy bulbs. Soil, light dryish loam. Propagated by offsets.

MIMOSA. [Leguminosæ.] This comprises the Sensitive plants, *M. sensitiva* and *M. pudica*, two stove shrubs, the foliage of which is endowed with a very remarkable and interesting sensibility, for the sake of which they are cultivated. The flowers of both are purplish—little globular balls of coloured threads—not at all showy, but the leaves are very elegant. The peculiarity which obtains for them both their name and popularity is the shrinking of the branches and folding up of

the leaves at the slightest touch or disturbance. If a leaf be touched it falls down, and the leaflets close; and if the whole plant be shaken or jerked all the leaves immediately close and hang down. The seeds are sown in a hotbed in March, and potted off as soon as they are large enough to handle into small-sized three-inch pots, in a light soil of sandy peat and loam. They are best kept in a hot frame till June, when they may be placed in any part of the stove or in a warm greenhouse. They must be shifted from small to larger pots as required. They seed freely enough; but when they are grown for seed they are sown in February, potted off in March, and are in full flower and seeding long before those sown in March. They are also increased by cuttings in sand under bell-glasses in heat. *M. sensitiva* is not so irritable as *M. pudica*. They are only grown as curiosities. There are many other Mimosas, chiefly shrubs of little interest.

MIMULUS. MONKEY FLOWER. [Scrophulariaceæ.] Showy herbaceous plants, mostly perennial, some small Musk plants are annual. The ornamental garden Mimuluses are mostly seedling varieties raised by florists, the offspring of *M. luteus*, *M. guttatus*, and *M. variegatus*, on the one hand, and of *M. cardinalis* and *M. roseus* on the other, and little trace of the originals now remains. These races are fugitive, the varieties of to-day continually giving place to others of some supposed superiority. Rich loamy soil, or, indeed, ordinary garden soil if good, will grow them well; but they like a damp, cool, and somewhat shady situation in summer, and are the better for some slight shelter in winter. A reserve should be kept in pots, protected in cold frames through the winter. *M. moschatus* is a favourite pot plant for the window: it is quite hardy in sheltered situations, and grows readily in pots of rich mould. The varieties are multiplied by division, and new varieties are obtained from seeds, which, if sown in heat in March, and nursed on in frames, will come into bloom in the course of the summer. Seeds are freely produced.

MINA. [Convolvulaceæ.] A pretty greenhouse climbing annual or biennial. Its flowers are produced, unlike most Convolvuli, in one-sided forked racemes, and are of so singular a contracted form at the mouth, that were the leaves removed its relation would hardly be suspected. The seeds

should be reared in a hotbed, potted separately, and shifted on into larger pots as they advance in growth, using a light rich compost of loam, leaf-mould, peat soil, and sand, gradually hardening off the plants by transferring to cooler frames, and at length to the greenhouse. It is increased by cuttings as well as by seeds. *M. lobata*, flowers crimson, changing to orange.

MIRABILIS. MARVEL OF PERU. [Nyctagineæ.] Showy half-hardy perennials, with thick fusiform roots. These plants are deservedly a great favourite in gardens, where they make towards autumn a splendid appearance. The branching stems bear roundish flowers, with rather a long tube, and, as these come at every joint when fairly open, they cover the plant. The individual blooms are in one respect like the *Convolvulus*—they shut up on dull days, so that it is an ungracious-looking plant in bad weather. In some kinds the tubes of the flowers are two or three inches long; in others they are shorter. The colours vary from yellow to red, white, and all shades between them, and sometimes two of the colours are disposed in stripes. To have choice varieties sow the best seed that can be got, and select each year the best that are produced for seed-bearing. Sow the seed in a hotbed in March, and as soon as the plants are large enough pot them three or four or half a dozen in a pot, to grow until the middle of May, when they may be planted out in the beds or borders at a foot apart. Here they will only require to be kept clear of weeds, and be watered in the event of the weather proving more than usually parching, but not if the weather be at all seasonable. The foliage will be touched by the first frost, after which the roots may be dug up, and stored away amongst dry sand where the frost cannot reach them. In April they may be put in the ground where they are to flower, whether that be in beds or borders; or, if any good ones are worth propagating, put them in heat in March, and strike the shoots like those of the *Dahlia*. To effect improvements a few seeds from the very best should be saved every year, and these plants are then best grown in beds, as they can then be more readily examined, and the worthless ones destroyed. It is in the size, colours, and markings of the flowers that improvements are chiefly to be effected.

MIRBELIA. [Leguminosæ, § Papilionaceæ.] Pretty greenhouse evergreen pea-flowered shrubs, requiring the treatment of *Chorozema*. Soil, sandy turfy peat, with a little fibry loam. Increased by cuttings in sand under bell-glasses. *M. Baxteri*, flowers yellow and red. *M. dilatata*, flowers purple. *M. floribunda*, flowers purple. *M. grandiflora*, flowers yellow.

MITELLA. [Saxifragaceæ.] Hardy herbaceous perennials, suitable for rockwork. Common soil. Increased by division.

MITRARIA. [Gesneraceæ.] A beautiful evergreen warm greenhouse shrub, with scarlet tubular flowers. Soil, fibry peat and loam, with an eighth part sand. Increased by cuttings in sand under a bell-glass in heat during the spring and summer. The young plants should be stopped frequently to secure bushiness of habit. *M. coccinea*, flowers scarlet.

MOCK ORANGE. See *PHILADELPHUS*.

MODIOLA. [Malvaceæ.] Half-hardy annuals and perennials. Common soil. Increased by seeds or divisions.

MOHRIA. [Polypodiaceæ.] A genus of elegant stove and greenhouse ferns. Soil, peat, loam, and brick rubbish. Increased by division. These plants must not be over-watered. *M. thurifraga* is the principal.

MONARDA. [Lamiaceæ.] Handsome hardy herbaceous perennials, the plants having an odour compared to bergamot. They are increased by division of the root, and flourish in the ordinary soil of gardens, preferring situations cool in summer. The principal varieties are *M. amplexicaulis*, white and pink; *M. didyma*, scarlet; *M. Kalmiana*, *M. purpurea*, purple.

MONKSHOOD. See *ACONITUM*.

MONOLOPIA. [Compositæ.] Pretty hardy annuals. Good garden soil. Increased by seeds. *M. major* flowers yellow, and is the best.

MONOTOCA. [Epacridaceæ.] Greenhouse evergreen shrubs, with white flowers. Soil, sandy peat. Increased by cuttings in sand under bell-glasses.

MONSONIA. [Geraniaceæ.] Ornamental greenhouse herbaceous plants, chiefly perennials. Soil, turfy loam and decayed leaves, with sand. Increased by division and cuttings of the root, or by cuttings of the plant in spring.

MOONSEED. See **MENISPERMUM.**

MORÆA. [Iridaceæ.] A considerable genus of pretty greenhouse perennial plants, mostly bulbous, and all of them desirable. They require the treatment of *Ixia*. The half-hardy species should be taken up or well protected in winter. Soil, turfy peat, loam, and sand. Increased by offsets.

MORINA. [Dipsaceæ.] Showy half-hardy herbaceous perennials. Propagated by seeds. Sow in pots in slight heat in April, prick into pots of light soil, and harden off in frames. Plant out in a sheltered border, where the plants may remain for flowering the following year; or, in case of a severe winter, a supply should be kept in pots (not too small), and protected in cold frames through the winter. They will generally survive at the foot of a wall if the soil be tolerably dry.

MORNA. [Compositæ.] Showy greenhouse plants. The annual species should be raised from seeds in autumn, about September, and again in spring, about March, the former blooming the following spring, the latter during summer and autumn. Prick out the seedlings, and pot when large enough, three or four in a pot. Shift them as required for blooming in pots in the greenhouse, or a portion may be planted out in a warm situation towards the end of June. Light rich compost should be used, as loam, leaf-mould, and sand. The perennial kinds are increased by cuttings as well as by seeds.

MOTHER WORT. See **LEONURUS.**

MOUNTAIN EBONY. See **BAUHINIA.**

MOUTAN. TREE PEONY. [Ranunculaceæ.] These are well-known and highly ornamental shrubs. Soil, peat and loam. They are multiplied by grafting on the fleshy roots of the herbaceous Peonies, and also by layers. The plants are hardy, but, as they come early into flower, the blossoms are apt to be injured unless protected. In cold conservatories, with the mere shelter of the glass, or against conservative walls, they form splendid objects: they are also suitable for growing as large pot plants, to be set in any effective sheltered position while they remain in bloom. Any of the numerous varieties are worth cultivating.

MULGEDIUM. [Compositæ.] A pretty hardy perennial, suitable for dry rockwork or a very dry border. Soil,

sandy loam, well drained. Increased by seeds, cuttings, or division. *M. macrorrhizum*, flowers pale blue.

MULLEIN. See VERBASCUM.

MURALTIA. [Polygalaceæ.] Pretty greenhouse evergreen shrubs of furze-like character, requiring the same treatment as Polygalas, to which they are related. Soil, sandy peat, with one-third loam. Increased by cuttings in sand under bell-glasses. *M. Heisteria* is scarcely ever out of flower under good management, though the flowers are individually small.

MUSA. PLANTAIN TREE. [Musaceæ.] This genus includes the Banana (*M. sapientum*) and Plantain (*M. paradisiaca*), which some botanists have considered as mere varieties. There are several species introduced, but the most interesting are *M. Cavendishii*, a dwarf kind that may be easily cultivated for its fruit; *M. coccinea*, a small kind, ornamental, from the scarlet colour of its erect bracts; and *M. ornata*, also of moderate growth, bearing an ornamental drooping raceme of orange flowers, with light purple bracts. The rest are mostly very large growers, requiring more room than can be generally afforded them. The *M. Cavendishii* bears at the height of six feet, while some of the others do not flower under double or treble that height. The soil they grow best in consists of two-thirds rich loam from rotted turves, and one-third decomposed dung. They must be placed in a warm part of the stove. They are propagated by suckers, which should be taken off carefully before they are much advanced, and potted in pots that will only just hold them. they require to be changed from time to time as they advance until they bloom and bear fruit.

MUSCARI. GRAPE HYACINTH. [Liliaceæ.] Dwarf hardy bulbs, which multiply so readily by means of offsets that they are in some cases troublesome to extirpate when once introduced, owing to their numerous minute progeny. The bulbs should remain in the soil from year to year, not taken up and dried; but every third or fourth they may be taken up and replanted in September, or early in October, before they begin to grow. Common garden soil; but a sandy loam is most congenial to these, as to all other bulbs.

MUSK PLANT. See MIMULUS MOSCHATUS.

MYOPORUM. [Myoporaceæ.] Greenhouse evergreen shrubs, some of which are pretty. Soil, fibry peat and loam, with sand. Propagated by cuttings in sand under bell-glasses. *M. crassifolium*, *M. ellipticum*, and *M. parvifolium* flower white.

MYOSOTIS. [Scrophulariaceæ.] This genus contains the Forget-me-not (*M. palustris*), a plant which, though indigenous to this country, and common enough by the sides of ditches and streams, yet thrives well under cultivation in situations moderately moist, and becomes very pretty, its blossoms, borne in scorpioid racemes, being of a very delicate pale blue, with a golden eye. It is of the readiest growth in any situation where a supply of moisture can be given to it. *M. Azorica*, a handsome greenhouse or half-hardy species, with dark blue flowers, grows freely in a mixture of turfy peat soil and loam, and is increased by cuttings.

MYRICA. CANDLEBERRY MYRTLE. [Myricaceæ.] Hardy deciduous shrubs. Peat soil. Increased by seeds or layers. *M. Californica* is the best.

MYRSINE. [Myrsinaceæ.] Greenhouse evergreen shrubs of neat habit and foliage, but having inconspicuous flowers. Sandy peat and loam. Increased by firm cuttings in sand under bell-glasses.

MYRTUS. MYRTLE. [Myrtaceæ.] Well-known favourite evergreen shrubs, mostly requiring greenhouse protection. Soil, two-thirds sandy loam to one-third peat earth or leaf-mould. Increased readily by cuttings in sand under a glass. The common Myrtle, as well as the double, will flourish against a wall in the open garden in favourable situations.

NARCISSUS. [Amaryllidaceæ.] A very large genus of showy hardy familiar bulbous-rooted plants, the species of which are ornamental and desirable spring border flowers. Under the name of Polyanthus-Narcissus great numbers of some florists' varieties are imported annually, like the Hyacinth and early Tulips; and these may be forced in pots, or bloomed in water, or planted in the borders. They require in every respect the same treatment as the Hyacinth. If grown in pots they may be planted in any rich light soil. If bloomed in glasses they want a change of water once a week. When put out in the borders they should be in patches of three,

put in pretty close to each other, forming a triangle, with one in front and two behind. A sandy loam is preferable for them. They require no protection except in very severe weather, and will bear a good deal of frost without injury. The plant has grassy or leek-like leaves: the flower-stem comes up in the centre, and from a sheath at the top bursts on one side the bunch of flowers, which are white or yellow, with a yellow or orange cup in the centre. The Jonquil is a species of *Narcissus*, considerably smaller than the *Polyanthus-Narcissus*, and very sweet-scented: there are varieties with both double and single flowers. There is considerable variety among the other species of *Narcissus*, all of which are worth growing as border flowers.

NASTURTIUM. [*Cruciferæ*.] The vulgar name often given to *Tropæolum*, instead of the proper one of *Indian Cress*.

NAVARETTIA. [*Polemoniaceæ*.] Dwarf hardy annuals, closely related to *Gilia* and *Ægochloa*, and requiring the same treatment. They should be sown about the middle of April.

NEJA. [*Compositæ*.] Half-hardy sub-shrub, suitable for summer beds. Light rich soil. Increased by cuttings.

NEMESIA. [*Scrophulariaceæ*.] Half-hardy annuals or perennials. Sandy, loamy soil. Increased by seeds or cuttings. The best is *N. floribunda*, which flowers white and yellow.

NEMOPHILA. [*Hydrophyllaceæ*.] Hardy annuals. Some species of great beauty. The best is *N. insignis*, whose flowers are very bright blue, with a white eye, and covering the plant in its season: it is on this account a most beautiful plant for clumps and beds which form parts of figures. For early blooming it should be sown in autumn, and protected in cold frames during winter: it may be sown in the pots or in a patch. These plants, if potted, and afterwards planted out in May, will bloom directly; and others sown in spring, about March and April, will be ready to furnish bloom as that of the early ones declines. It is tolerably hardy, for self-sown plants stand over ordinary winters. *N. maculata* is another showy species, but all the rest are only to be grown for the sake of variety. For beds the seedlings should be put out four inches apart, and the plants will then present a dense mass of flowers. The soil should not be too rich, for if the plants grow rank they become straggling, and flower less.

abundantly. There is no annual so useful as *N. insignis* if kept in sixty-sized pots, or even smaller, one in a pot: it makes a bright speck in any vacant place in a border or bed, and is never out of place.

NEOTTIA. [Orchidaceæ.] A genus containing some hardy perennial as well as tender species. Soil, peat and loam. Increased by division. *N. æstivalis*, *N. autumnalis*, and *N. cernua* are worth growing as curiosities.

NEOTTOPTERIS. [Polypodiaceæ.] Stove ferns of ever-green habit, of which, however, one species will succeed in a cool house if not over-watered in winter. Turfy peat. Increased by division or by spores. *N. vulgaris* is also known as *Asplenium nidus*.

NEPENTHES. **PITCHER PLANT.** [Nepenthaceæ.] A most extraordinary race of plants, whose peculiarity lies in the organs called pitchers, from which the plants derive their name. The plants are shrubby, and the leaves have a most extraordinary appendage at the end of each, in the form of a complete pitcher with a lid to it, which opens and shuts at the pleasure of the plant, if we can imagine a plant to have a will of its own. This pitcher is partially filled with a liquid distilled from the plant. The flowers are inconsiderable, and form no part of their claim as ornamental subjects. They require the stove, and grow well in turfy peat soil, mixed with sphagnum, as used for orchids. If not grown too rapidly they form handsome pyramidal objects. They should not be often repotted, but strong young plants should be put at once into pots that will admit of a considerable growth. Many very noble specimens have been sacrificed by having been forced too much at the root, and have gone off in consequence. Formerly *N. distillatoria* was the most striking plant of this race known in cultivation, but the last few years have added several others which are certainly handsomer. Of these, *N. Rafflesiana*, which has very large pitchers, spotted and blotched with crimson; *N. sanguinea*, also marked with crimson; and *N. albo-marginata*, which has a band of white wool round the edge of the pitcher, and is smaller than the others, are some of the most interesting.

NEPHRODIUM. [Polypodiaceæ.] A large genus of ferns, mostly tropical, but comprising a few which thrive in a

greenhouse. Soil, turfy peat and loam. Increased by division or by the scattered spores. *N. molle*, greenhouse evergreen fern. *N. unitum*, greenhouse evergreen fern, sometimes called *N. lucens*.

NEPHROLEPIS. [Polypodiaceæ.] Ornamental evergreen ferns, one or two of which succeed in a greenhouse. Peat and loam. Division. *N. exaltata*, stove. *N. tuberosa*, stove.

NERINE. [Amaryllidaceæ.] Pretty greenhouse bulbs, which require the same treatment as Amaryllis. Soil, strong rich loam. Division of offsets. They must be kept dry when at rest. *N. Sarniensis* is the Guernsey Lily, of which large quantities of flowering bulbs are annually imported.

NERIUM. OLEANDER. [Apocynaceæ.] A remarkably showy, though virulent genus of greenhouse evergreen shrubs, forming noble objects in the conservatory. Although they flower freely when scarcely a foot high from cuttings, they will grow ten or fifteen feet high, forming splendid trees, covered with rose-coloured, or white, or variegated flowers, which come in bunches at the ends of all the branches; and the individual flowers of the double-blossomed varieties come as large as a middling-sized Rose, and ten or more in a bunch. The Oleander may be set down as a neglected plant. Young shoots three inches long, with a bell-glass over them, strike freely in sandy compost, a little bottom-heat hastening the rooting. They should, when rooted, be potted singly in five-inch pots, and not removed till they have filled the pots with roots, but nevertheless kept growing: they will then bloom the first season, almost before they are a foot high, and the plants will continue to flower every season as they advance in size. They grow best in a compost of loam and peat, with about a fourth part well-decayed manure; and if this is too adhesive, from the nature of the loam used, about a sixth part of sand should be mixed with it. They require to be placed in the stove to bring out the blooms well, although they have been set down as greenhouse plants; as such they have been ill-treated in almost all establishments, where they may be seen condemned to associate with a few rusty Orange and Lemon trees, equally ill-used.

NEW ZEALAND FLAX See PHORMIUM.

NICOTIANA. TOBACCO. [Solanaceæ.] An extensive genus, the species mostly hardy annuals. The most interesting is the *N. tabacum*, or Virginian Tobacco, of which several varieties, all having rose-coloured flowers, are pretty enough to be introduced sparingly into large miscellaneous flower-borders: they grow from three to six feet high, according to the soil and climate. *N. Langsdorffii*, with green flowers and blue anthers, is rather pretty. Of the common annual species the seeds may be scattered over the borders in April, and a single plant left here and there where there is room for it. The Virginian Tobacco must be sown in a warm frame in April, and treated like a half-hardy annual, being planted out in May, to produce fine blooming plants. From the size to which these plants grow, with their ample foliage, they should always be planted singly. Seeds are produced in abundance, by which they are increased.

NIEREMBERGIA. [Solanaceæ.] Pretty half-hardy herbs, suitable for the flower garden and for small beds. Sandy loam and peat. Cuttings in sand during summer. The plants must be wintered in a dry airy greenhouse, with precaution against damp. They may be planted out in May. *N. gracilis*, flowers white and lilac.

NIGELLA. FENNEL FLOWER, OR DEVIL-IN-A-BUSH. [Ranunculaceæ.] Hardy annuals, requiring only to be sown in the open border in March, and again in May, and the plants thinned to three or four inches apart, six or eight being left in a patch. The flowers have a singular form and highly curious appearance.

NIGHTSHADE. See **SOLANUM.**

NIPHÆA. [Gesneraceæ.] Pretty dwarf free-flowering tuberous-rooted stove perennials, allied to *Achimenes*. They may be bloomed in a temperature but slightly warmer than that of a greenhouse, the additional warmth being principally required at the time of starting the tubers into growth. They should be grown in flat wide pots, in a compost of three-fourths leaf-mould to one-fourth loam and sand. During winter they should be kept quite dry. *N. oblonga* and *N. rubida* flower white.

NIPHOLOLUS. [Polypodiaceæ.] Greenhouse neat-growing creeping simple-leaved ferns Turfy peat. Divi-

sion. *N. lingua*, *N. pertusus*, and *N. rupestris* are the principal.

NIPPLE CACTUS. See **MAMMILLARIA.**

NOLANA. [Nolanaceæ.] Pretty annuals of prostrate trailing habit, with Convolvulus-shaped blossoms. They may be sown in the open ground in April and May; or an earlier crop, in pots for planting out, may be sown in March, and the plants kept in a cold frame till the middle of May. They will flourish in good light garden soil, and are increased by seeds.

NOTHOCHLÆNA [Polypodiaceæ.] Delicate but very beautiful evergreen ferns, requiring a greenhouse. Soil, sandy peat. Division. The plants must be carefully preserved against damp, both at the root and on the leaves: the latter should not be wetted, nor exposed to currents of air, nor the desiccation caused by excessively dry air. The scaly fronds suffer most from damp. *N. distans*, *N. Echloniana*, *N. lanuginosa*, *N. Marantæ*, *N. nivea*, *N. tenera*, are the chief.

NUPHAR. [Nymphæaceæ.] Hardy water plants, with large floating leaves like those of *Nymphæa*, but having yellow flowers. The exotic species are worth cultivating. The culture of them is in all respects the same as that of *Nymphæa*.

NUTTALLIA. [Rosaceæ.] Hardy shrub. Loam and peat. Layers. The plants often called Nuttallia in gardening belong to *Sida*. *N. cerasiformis*, hardy deciduous shrub, flowers white, in spring.

NYCTERINIA. [Scrophulariaceæ.] Pretty greenhouse plants, requiring to be grown in a sandy soil of peat and loam. Increased by cuttings or seeds. The perennials require an airy greenhouse and care in watering. The annuals to be treated as half-hardy annuals.

NYMPHÆA. WATER LILY. [Nymphæaceæ.] A family of beautiful water plants, including some of the most desirable for cultivation in hardy aquariums. This genus includes several stove species as well as the hardy ones, of which latter nearly all have white flowers. The plants require to be planted in a layer of rich mud at the bottom of the water; and so that there is room enough for their floating foliage they need little other attention. One of the best ways of

fixing the rhizomes, or root-stocks, is to plant them in a common wicker basket filled with mud, the basket being dropped into the water where the plant is required. The tender kinds have to be planted into large pots or pans, which are sunk into cisterns of water; and, in order to secure the blooming of the plants, there ought to be provision for warming the water in the cisterns by some means or other. They are increased by dividing the rhizomes. Both hardy and tender species are worth growing. *N. alba*, hardy; *N. nitida*, hardy; *N. odorata*, hardy; *N. pygmæa*, half hardy; *N. reniformis*, half hardy, all flower white. *N. cærulea*, stove, flowers blue, and is very fragrant.

OAK. See QUERCUS.

OBELISCARIA. [Compositæ.] Showy hardy perennials. They require the same treatment as *Rudbeckia*, to which they are allied.

OBESIA. See STAPELIA.

ÆNOTHERA. EVENING PRIMROSE. [Onagraceæ.] Showy hardy plants, mostly perennials and biennials, with a few annuals. The annuals require to be sown in March or April where they are to flower, and to be thinned when they come up, or they may be sown in a patch and planted out. Common garden soil. The biennial and perennial kinds should be sown in patches, and planted out, when they are large enough, wherever they are to bloom. The latter grow best in peaty soil, and especially in situations where they are not subjected to drought. There is a large number of species. Most of the old-fashioned annual *Ænothervas* are now called *Godetia*. *Æ. macrocarpa*, *Æ. taraxacifolia*, and *Æ. viparia* are the best.

OLEA. OLIVE. [Oleaceæ.] Greenhouse evergreen shrubs for the most part. The cultivated Olive is half hardy. Loam and peat. Cuttings. *O. fragrans*, flowers white, very fragrant. *O. ilicifolia* is nearly hardy, as well as *O. Europæa*, the olive of commerce.

OLEANDER. See NERIUM.

OLEASTER. See ELÆAGNUS.

OMPHALODES. [Boraginaceæ.] A genus containing two favourite plants—the annual Venus's Navelwort, and the early-blooming dwarf *O. verna*, whose pretty little bright blue

flowers are mistaken by persons not skilled in plants for the Forget-me-not—a very different thing. Both are of the easiest culture. The perennial will increase to any extent by division, and, when once planted, need not be disturbed for years; for, within moderate limits, the larger the patch of such diminutive subjects the better. It is very suitable for rockwork which is not too dry and exposed. The annual may be sown in the borders towards the end of March, and again in May for a succession, and requires only good garden soil.

ONOCLEA. [Polypodiaceæ.] Hardy ferns Peat. Division. *O. sensibilis* is the chief.

ONONIS. RESTHARROW. [Leguminosæ, § Papilionaceæ.] A genus of hardy and half-hardy perennials and annuals. Some of the sub-shrubby species are suitable for large rockwork. Sandy loam. Seeds.

ONOSMA. [Boraginaceæ.] Perennial herbs, mostly hardy, and many of them pretty subjects for rockwork. The flowers are tubularly bell-shaped, and in all cases yellow or yellowish. They grow best on dry and rather sandy soil, such as exposed rockwork, being very liable to rot off in damp confined places, and the tenderer ones require protection from wet in winter. When seeds can be got they make the best plants: they should be sown about May, either in pots for subsequent transplantation, or in the situations where they are to remain. If seeds cannot be had they must be increased by cuttings of the young shoots planted in sandy soil, and placed under a hand-glass.

ONYCHIUM. [Polypodiaceæ.] Elegant ferns of easy culture. Turfy peat and loam. Division. *O. Japonicum*, greenhouse evergreen fern, is sometimes called *O. lucidum*.

OPHELIA. [Gentianaceæ.] A pretty annual. Peat border. Seeds, to be sown in heat in April; the young plants planted out in May. *O. purpurascens*, flowers purplish.

OPHIOGLOSSUM. ADDER'S TONGUE. [Ophioglossaceæ.] Curious hardy plants, related to ferns. Loam. Division. The common *O. vulgatum* and the Jersey *O. Lusitanicum* are worth introducing among hardy ferns.

OPHIOPOGON. [Liliaceæ.] Hardy and half-hardy perennial. Sandy loam and peat. Division.

OPHRYS. [Orchidacæ.] Hardy orchids of difficult culture. The tubercles should be taken up as the plants decay, and planted in loam with chalk intermixed: neither the tubercles nor the surface of the soil should be disturbed after planting.

OPORANTHUS. [Amaryllidacæ.] A pretty hardy bulb, whose yellow Crocus-like flowers are very welcome additions to the flower-border in autumn. Being dwarf, it is adapted for the formation of autumn-blooming margins to flower-beds or grass, the tint of which would contrast well with the yellow of its flowers. It is quite hardy, and of the easiest culture, preferring, like most of the Amaryllis family, a good rich loam, but growing without difficulty in any good garden soil. It is increased, like other bulbs, most readily by offsets. For bulb gardens, this being an autumn bloomer, may be considered quite essential.

OPUNTIA. INDIAN FIG CACTUS. [Cactacæ.] A curious family of greenhouse succulent shrubs of the Cactus group, remarkable from the singular appearance of the broad flattened oval branches or divisions of the stem growing end to end: these are variously clothed with clusters of spines, which are mostly much shorter than those of the Echinocacti. The Opuntias are mostly tall or massive-growing plants. *O. vulgaris* is nearly hardy, and, together with *O. Tuna*, often ripens a crop of agreeable pulpy fruit.

ORANGE. See CITRUS.

ORBEA. See STAPELIA.

ORCHIS. [Orchidacæ.] Hardy perennials, like Ophrys, difficult of culture, and requiring similar treatment.

ORIGANUM. MARJORAM. [Lamiacæ.] In this genus of hardy aromatic herbs are included two pretty greenhouse dwarf shrubs, which are excellent window plants. They increase by cuttings, and grow in sandy loam. *O. dictamnus*, half-hardy sub-shrub, flowers purple. *O. Sipyleum*, half-hardy sub-shrub, flowers purple.

ORNITHOGALUM. STAR OF BETHLEHEM. [Liliacæ.] An extensive genus of bulbous plants, containing about a score of hardy species, and about twice that number of half-hardy ones. The flowers are star-like, and, in the majority of instances, white, often streaked inside or out with green.

They grow readily in rich light loamy soil, the hardy ones planted out in the open borders or in beds, and the tender ones potted and kept in a frame or on a shelf in a cool greenhouse. The taller species, with their long spikes of starry flowers, are very ornamental. They all increase by means of offsets, as is the case with other bulbs.

OROBUS. BITTER VETCH. [Leguminosæ, § Papilionaceæ.] An extensive family of hardy perennials, with hardly an exception. Common light deep garden soil. Division.

OSAGE ORANGE. See MACLURA.

OSMUNDA. FLOWERING FERN. [Osmundaceæ.] The *Osmunda regalis*, called the Osmund Royal, is one of the finest of our native ferns. It grows in marshy situations, or at least where there is a constant supply of moisture. This fern is seldom seen in cultivation above three or four feet high; but in some of its native localities, as, for example, on the banks of the Irish lakes, it reaches ten or twelve feet high, and combines with its inherent nobility of aspect a great degree of elegance and grace. In a less luxuriant state it is rather rigid than graceful, but in any healthy condition beautiful. This differs from other ferns in not having its fructification scattered on the back of the fronds, but collected together, and forming the entire upper part. To grow them well they must have peaty soil and plenty of moisture. *O. cinnamomea*, *O. gracilis*, *O. interrupta*, *O. regalis*, and *O. spectabilis* are all cultivated.

OXALIS. WOOD SORREL. [Oxalidaceæ.] A very extensive, a very varied, and a very ornamental genus. The majority of the species are bulbs from the Cape of Good Hope and South America, and well suited for pot culture in the greenhouse: most of these, however, will grow in a warm dry sheltered border in the flower garden, especially if protected during winter by a covering of some dry open material, such as sawdust or half-decayed leaves. The best plan of all is to plant them out in a bed made up in a frame or pit, and covered with glass. They thrive in equal parts of peat, loam, and leaf-mould. Another bulbous group is quite hardy: these need only to be planted out in a bed, and allowed to grow as they please for several years. The soil should contain some proportion of peat and leaf-soil. The fleshy

tap-roots of *O. Deppei* are cultivated as a delicate esculent; and the tubers of *O. crenata* are also sometimes grown for the same purpose, the leaves and stems of this latter kind forming a substitute for rhubarb stalks and sorrel in domestic cookery. When cultivated for their produce they must have a very rich soil. Of the ornamental kinds there are some which have short fleshy stems, which just serve to elevate a dense tuft of leaves and blossoms above the soil. *O. carnosa*, *O. floribunda*, and *O. lasiandra* are very pretty subjects of this class. Of these *O. floribunda* has been proved a valuable flower-garden plant, incessantly blooming through the summer. These should have a free open peaty soil, whether planted in pots or in beds; and they may be wintered in a cool greenhouse or dry frame. There are some hardy annual species, and some few stove shrubs. The bulbous kinds are increased from the offsets; the fleshy-stemmed kinds by division; the annuals by seeds; and the shrubby kinds by cuttings. *O. Bowiei*, flowers pink, in spring.

OX-EYE. See BUPHTHALMUM.

OX-LIP. See PRIMULA.

OXYCOCCUS. CRANBERRY. [Ericaceæ.] Trailing evergreen shrubs, requiring marshy peat soil. Increased by layering and division.

OXYLOBIUM. [Leguminosæ, § Papilionaceæ.] A genus of very ornamental evergreen greenhouse shrubs. They may be increased by cuttings, which strike in an inch of sand upon a pot of the ordinary soil made sandy, the bottom of the cutting just to reach the soil: they should have slight bottom heat, and be covered with a bell-glass. The plants seed rather freely, and may be raised from the seed sown as soon as it is ripe in wide-mouthed pots, and placed in the greenhouse. When up they may be pricked out, and when large enough potted, and changed from small to larger ones as the former fill with roots. The compost for them should be peat, loam, and sand, in the proportions of three parts of the first to one of each of the latter. To make handsome plants they should not grow too fast. They are just the kind of plant that would hardly be known if, instead of regular growth in the soil we have mentioned, they were placed in more exciting soil and a little artificial heat. *O. capitatum*, flowers yellow.

O. obovatum, flowers red and yellow. *O. retusum*, flowers orange yellow.

PÆONIA. PEONY. [Ranunculaceæ.] Very showy hardy perennials of large growth. The shrubby kinds, known as Tree Peonies, are now called Moutan. (See MOUTAN.) They are all very beautiful, the colours comprising white, blush, pink, scarlet, rose, crimson, and in some cases white delicately tinted with rose. The single-flowered Peonies are like large-flowered Poppies. They grow in rich loamy soil, and are propagated readily by division.

PALMA CHRISTI. See **RICINUS**.

PANCRATIUM. [Amaryllidaceæ.] A considerable genus of bulbous plants, the majority of which require a stove. They have the habit of Amaryllis and Crinum, and require the same management throughout, except as to temperature. Compost, three-parts turfy loam, one part turfy peat, and one part rotted cowdung. They should be potted with the bulb half covered with the soil, and should be placed in the stove or a warm greenhouse, where they want no other care than a little water until they flower, and after that none till they begin to grow again for the next season. The hardy ones should be planted on a south border in a dry warm soil. Propagated by offsets or by seeds.

PANSY. See also **VIOLA**.

PAPAVER. POPPY. [Papaveraceæ.] A genus of hardy plants, containing many weedy and some showy species: it comprises perennials, biennials, and annuals. Of the latter the double-flowered varieties, sometimes known as Carnation and Picotee Poppies, are the most worthy of cultivation, and these are really gay as well as stately plants; besides which, if colours have any charm in a garden, it is almost impossible to enumerate the different tints that a pinch of good seed will produce. These annual kinds will overrun a garden if the pods of seed are not removed before ripening. For mixed or shrubby borders this may be no objection, as plants can be left where there is space for them, and the rest hoed up; but in the more neatly-kept parts of a garden this scattering of the seed should be prevented, and a supply of plants raised by special sowing. The seeds may be sown in March, and again in April, in patches where they are to

grow, and thinned out to three or four strong plants in a patch; or, if more convenient, they may be sown thinly in any open place out of the way, and when large enough planted in the borders and beds where they are wanted. Any plants which show flowers at all secondary in quality should be pulled up immediately, and allow none to be left in the ground but very double and very pretty ones: the seed from these, or from the most beautiful of them, will give good varieties another year. The perennials want no culture but to be planted in good garden soil, and left undisturbed: they increase by seeds or by division.

PARDANTHUS. [Iridaceæ.] Hardy or half-hardy perennials, requiring a somewhat sheltered situation, and dry or well-drained soil; in other respects assimilating in cultivation with *Iris*.

PARIS. [Melanthaceæ.] Curious hardy perennials. Peat and loam. Division.

PARNASSIA. [Hypericaceæ.] Pretty dwarf hardy herbaceous perennials. Damp peaty soil. Division or seeds. *P. asarifolia*, *P. Caroliniana*, *P. palustris*, all flower white.

PARSONIA. [Apocynaceæ.] Greenhouse or stove climbing shrubs. Soil, peat and loam. Cuttings.

PASCALIA. [Compositæ.] Hardy perennial. Common soil. Dryish situation. Division.

PASSIFLORA. **PASSION-FLOWER.** [Passifloraceæ.] An extensive genus of stove, greenhouse, and half-hardy climbers, containing many very beautiful species. *P. carulea* is considered hardy, as it will succeed against a wall in sheltered situations, and under such conditions may be considered deciduous, as the younger leafy parts are more or less destroyed by frost. Some of the stove and greenhouse kinds are very handsome. There are some which bear fruits that are edible, and are said to be fragrant, cooling, and pleasant; but, however interesting they may be as curiosities, other fruits must be scarce to render these of any value. The tender sorts are best planted in a stove or warm conservatory, and allowed to grow along the rafters; and the hardy sorts should be planted against a south wall or front of a house. They should all be grown in a mixture of loam, peat, and sand. Some of the

smaller sorts will flower in pots; but they want plenty of trellis, as they only flower when the plant has made considerable growth. All strike freely from cuttings in sand with bottom heat, and when well rooted should be potted into small pots, which must be changed as they advance. They require a moderately rich soil to bring them to a vigorous and finely-bloomed condition, and when grown in pots weak liquid manure is very beneficial to them during their blooming period. The following are the best:—*P. cærulea*, half-hardy climbing shrub, flowers white and blue. *P. cærulea racemosa*, flowers reddish purple. *P. edulis*, stove climbing shrub, flowers whitish. *P. kermesina*, stove climbing shrub, flowers crimson. *P. Loudonii*, stove climbing shrub, flowers scarlet. *P. quadrangularis*, stove climbing shrub, flowers brown, red, and green. Of numerous other fine stove species the best are *P. alata*, *P. Billottii*, *P. Middletoniana*, and *P. onychina*. There are many curious minute-flowered species with green blossoms.

PATERSONIA. [Iridaceæ.] Greenhouse herbaceous perennials. Peat and loam. Seeds or division. All the species have blue or bluish, showy but fugitive flowers.

PAULOWNIA. [Scrophulariaceæ.] A fine deciduous tree, allied to Catalpa, scarcely hardy in England except in the most favoured spots, in consequence of its producing very robust shoots, which English summers seldom ripen. Its large bunches of trumpet-shaped purplish flowers are very handsome. It should be planted in a dry soil, and in warm situations, where its vigorous shoots would be well ripened annually, and is increased by layers. The only one cultivated is *P. imperialis*, hardy tree, flowers purplish.

PAVIA. [Sapindaceæ.] A small group of the Horse-chestnut family, consisting of handsome flowering trees of the smaller class. They grow in any deep lightish garden soil, and are usually increased by grafting on the common Horse-chestnut or by layers.

PEACH. See **PERSICA.**

PEDICULARIS. LOUSEWORT. [Scrophulariaceæ.] Hardy and half-hardy perennials, often very handsome, but not very cultivable. Damp peaty soil. Seeds. Many species have been introduced, but they are speedily lost.

PELARGONIUM. STORK'S BILL. [Geraniaceæ.] These are commonly known as *Geraniums*, but botanists distinguish between *Pelargoniums* and *Geraniums*, the former having irregular flowers (petals not all alike in form, &c.) and ten stamens, the latter regular flowers (petals alike in size, form, &c.) and five stamens. This arrangement brings the popular flowers now so much grown, and familiarly known as *Geraniums*, into *Pelargonium*. The varieties now grown have sprung, by a many years' course of hybridisation and cross-breeding, from a race of shrubby and tuberous-rooted kinds which are natives of the Cape of Good Hope. The *Pelargonium*, a universal favourite, is a greenhouse plant, growing well in a soil composed of one-half loam of rotted turves, one-fourth turfy peat, and one-fourth well-decomposed horse or cowdung, rotted into mould. New varieties are raised from seed, and the established favourite sorts are propagated by cuttings. The seed is sown as soon as ripe, and the young plants, when large enough to handle, may be pricked out four or five in a pot, and when they have grown larger they may be separated, and put one in a three-inch pot. They should be nursed on in a greenhouse during the summer and autumn, and the stronger ones may be transferred, when well rooted, into five-inch pots, the others remaining in the smaller size. They must be wintered on a shelf of the greenhouse, where they may stand very near the glass, and in an open and airy position. In a house where such seedlings are wintered the temperature must be kept comfortable, that is, warmish and dryish during that season. If this accommodation cannot be given it is better to sow in spring, although a season may often be lost. If sown in spring all the plants should bloom the next year. To propagate from cuttings, the trimmings of the plants, which are cut down close after blooming about July, are used. The plants are to be cut down within an eye or two of the last pruning, so as to form a proper skeleton for growing into a good-shaped shrubby plant the next year. The pieces cut off will make plants. Cut the lower end clean off close below a joint, which latter is to be put in the ground, and another joint or two be left above the surface. The cuttings will strike in the open garden, merely covered with a hand-glass and occasionally watered: a light compost is

preferable for them. When they are struck they may be potted singly in three-inch or five-inch pots, which will serve them till spring, when they must be shifted into larger ones. They may be grown out of doors until September, but will then require to be housed. A greenhouse or a garden frame will equally suit them, provided the frost is not allowed to enter, and they are preserved from damping: the less heat and the more air a *Pelargonium* plant has the better, so that it be not frosted. The trade catalogue of Dobson and Co. gives hundreds of varieties, comprising all the best.

PENTAS. [Cinchonaceæ.] Pretty free-flowering soft-wooded stove plants. They should be raised annually from cuttings, which root readily in a hotbed, and the young plants must be stopped frequently until a bushy plant is formed, when they may be allowed to grow away for flowers, which will be continued in succession for a long time if the plants have nourishment enough to support them. Cuttings rooted in spring and autumn will almost keep up a constant succession of flowers. Soil, a mixture of loam, peat, and leaf-mould. The tips of the shoots must not be removed when the plants are required to produce their blossoms. *P. carnea* is the best.

PENTHORUM. [Crassulaceæ.] Hardy succulent-leaved perennials. Common soil. Increased by division.

PENTLANDIA. [Amaryllidaceæ.] Handsome-flowered bulbs, requiring to be grown in a frame or cool greenhouse, and to have rich loamy soil, with a season of rest. Seeds or offsets. *P. miniata*, flowers scarlet. There are two varieties — *lacunosa* and *Sullivanica* — which differ in the period of flowering.

PENTSTEMON. [Scrophulariaceæ.] A large genus of hardy or half-hardy herbaceous perennials, sometimes sub-shrubby, among the most ornamental of summer-flowering plants. The best kinds for the flower garden are the varieties of *P. gentianoides*, which is sub-shrubby, propagates freely by cuttings, and blooms most profusely from August onwards till severe frost occurs. It should be wintered in cold frames, and planted out in spring. They may all be propagated by seeds or cuttings, less freely by division, according to their peculiar habits of growth, and require to be planted in a

moderately rich light loamy soil to attain their full beauty, which is very considerable. Most of those called half-hardy perennials, which are not sub-shrubby, survive over winters in favourable situations, and protected against excessive wet. It is, however, safer to shelter them in cold frames. They also survive better where there is a keen pure air. The varieties are numerous.

PERESKIA. [Cactaceæ.] A small genus of cactaceous shrubs, having woody spiny stems, and flat fleshy leaves. The *P. aculeata*, or Barbadoes Gooseberry, grows with long trailing branches, and is often employed as a stock on which Cacti are grafted. When these long stems are trained to the rafters of a plant stove, and are worked with branches of the flowering Cacti, especially the small drooping *Epiphyllum truncatum* and its varieties, it has a very charming effect. For the formation of standard Cactuses the Pereskia is not so good a stock as some of the stouter Cereuses, on account of its wiry stems. Their treatment is the same as that of Cacti.

PERILLA. [Lamiaceæ.] Half-hardy annuals. Light garden soil. Seeds. *P. Nankinensis* has leaves coloured purple.

PERIPLOCA. [Asclepiadaceæ.] Hardy deciduous twiners. Common soil. Layers and cuttings. *P. angustifolia*, flowers purplish. *P. Græca*, flowers brown.

PERIWINKLE. See VINCA.

PERNETTYA. [Ericaceæ.] Pretty hardy evergreen shrubs. Peat. Seeds and layers. *P. angustifolia*, *P. ciliata*, and *P. mucronata*, flower white.

PERSICA. PEACH. [Amygdalaceæ.] This genus, well known from its fruits, contains also some beautiful flowering shrubs. Good garden soil. Propagated by budding. See also AMYGDALUS.

PERSICARIA. See POLYGONUM.

PERUVIAN DAFFODIL. See ISMENE.

PETUNIA. [Solanaceæ.] Showy soft-stemmed shrubby perennials, closely allied to Nierembergia. The garden Petunias have sprung from *P. nyctaginiflora* and *P. violacea*, the latter, in its original form, one of the richest of all plants for bedding out in the flower garden, owing to its brilliant colour. There are, however, few families in which cultivation has

effected such a revolution as in this; for from the flimsy flowers of the old white, and the pointed blossoms of the old purple, have been produced flowers of circular outline, with thick corollas and fluctuating beautiful colours. Petunias are propagated either by seed or cuttings. Seeds may be sown in March on a hotbed, and the plants treated as half-hardy annuals. Cuttings strike freely placed in a frame with bottom heat: they should be planted in March and April, being obtained from old plants placed in heat, and from the tops of the earlier-planted cuttings, if a supply of young plants was not provided the previous autumn. The young plants require to be separately potted, hardened in a cold frame, and planted out in May, when the danger of frost is past. A few plants should be kept in pots, rather stunted, for preservation through the winter, in order to supply cuttings, in spring; or young plants may be struck in August, and well hardened, and kept in the greenhouse on an airy shelf through the winter: such plants will, if vigorous and healthy, bloom earlier than spring cuttings. For this reason a supply, more or less abundant, should always be struck at the end of the summer, to keep over for planting out in spring. Many varieties are grown yearly.

PHACA. [Leguminosæ, § Papilionaceæ.] Hardy herbaceous perennials. Sandy loam. Seeds or division.

PHACELIA. [Hydrophyllaceæ.] Pretty annuals of the easiest culture in the open ground, the seeds being sown in March and April. There are some unimportant perennials.

PHÆDRANASSA. [Amaryllidaceæ.] A showy genus of greenhouse bulbous plants, requiring the treatment of Phycella; that is, strong rich loamy soil, and multiplied by offsets from the bulbs.

PHALANGIUM. [Liliaceæ.] Hardy herbaceous perennials, with pretty blossoms. Common soil. Division.

PHALARIS. [Gramineæ.] Hardy annuals. Common soil. Seeds.

PHALOCALLIS. See **CYPELLA.**

PHARBITIS. **GAY-BINE.** [Convolvulaceæ.] Annual and perennial twiners of graceful habit, with extremely gay flowers. Some of the species are tender; others may be treated as half-hardy annuals. The genus contains the well-

known *Convolvulus major*, the plants commonly grown under that name including the varieties of *P. hispida*, *P. nil*, *P. heisteracea*, and perhaps some others. The colours of the *Convolvulus major* are varied: deep purple, violet, light blue, white, pale rose, deep rose crimson, and blue and white striped. This *Convolvulus* should be sown in April in patches, round a post or pillar, or at the foot of a stump of a tree, or where it can be provided with tall branchy stakes on which to twine, for the plant will grow ten feet high, and in season be covered with bloom. It is, however, characteristic of the plant to close its flowers during rains or in very cloudy weather, and at the approach of night. The varieties seed freely; but, as the seeds soon shed after ripening, a good lookout must be kept for the pods. It may also be sown in pots in March, and kept in frames till May, and then planted out. They like a light rich soil. The other annual species require exactly the same management. A strong-growing somewhat shrubby species, *P. Learii*, is too handsome to be here omitted, though it requires a stove or warm greenhouse. It is a plant which grows and flowers well, provided it has room to extend its branches, and nourishment to support them: it likes a strongish rich loamy compost.

PHASEOLUS. KIDNEY BEAN. [Leguminosæ, § Papilionaceæ.] Twining plants, some annual and hardy, others require stove heat. *P. multiflorus*, the well-known Scarlet-runner Bean, deserves notice as a flower-garden plant from its showy appearance when in blossom. It is a plant well adapted for covering summer-houses and temporary trellises, and is more or less ornamental from June to October. The seeds should be sown where the plants are required in the month of March.

PHEASANT'S EYE. See ADONIS.

PHILADELPHUS. MOCK ORANGE, or SYRINGA. [Philadelphaceæ.] Ornamental deciduous flowering shrubs. Confusion sometimes arises from the fact that the common name of this shrub, *Syringa*, is the same word as the botanical name of the Lilac tree; and as both are shrubs, often introduced into gardens and shrubberies from their free-flowering qualities, the confusion is attended with inconvenience. The plants are widely different. The Lilac (*Syringa vulgaris*), as

is well known, bears numerous small flowers in clusters shaped something like an erect bunch of grapes. The Syringa, or Mock Orange (*Philadelphus*), on the other hand, bears its flowers, which are large, and composed of distinct petals, either singly or very few together; and they are called Mock Orange from the considerable resemblance between their blossoms and those of the Orange tree. Most of the species have a strong, but not very agreeable scent. Their leaves, moreover, have a taste similar to that of cucumbers. They are hardy shrubs, requiring no particular culture, but growing in ordinary garden soil where it is not too damp, and are increased either by means of layers, of cuttings, or of suckers. The flowers of all are white, with a bunch of yellow stamens in the centre. Nearly all are worth planting. The double flowering is distinct and handsome.

PHILESIA. [Smilacæ.] Beautiful hardy or half-hardy evergreen shrubs. Peat soil. Cuttings. *P. buxifolia*, half-hardy evergreen shrub, flowers large rose crimson, and is very pretty.

PHILLYREA. [Oleaceæ.] Desirable evergreen shrubs, valuable for their foliage and habit, the flowers being white and insignificant. Good garden soil. Layers or cuttings under a hand-light. **ORNAMENTAL EVERGREENS.**—*P. angustifolia*, *P. laevis*, *P. latifolia*, *P. ligustrifolia*, *P. media*, *P. oleæfolia*.

PHILOTHECA. [Rutaceæ.] Beautiful greenhouse evergreen shrubs. Sandy peat. Cuttings in sand under a bell-glass. The only one of any account is *P. australis*, flowers pink.

PHLEBODIUM. [Polypodiaceæ.] Evergreen ferns, mostly requiring a stove. *P. aureum*, a fine species, grows, though less vigorously, in a greenhouse from which frost and currents of air are excluded. Turfy peat. Division.

PHLOMIS. [Lamiaceæ.] Hardy shrubs and herbaceous plants. Dry loamy soil. Division, seeds, or, for the shrubby sorts, cuttings.

PHLOX. [Polemoniaceæ.] Beautiful hardy perennials for the most part. The seedling varieties are numerous; some tall, others remarkably dwarf, and varying in colour from clear white to pink, lilac, and purple, as well as striped

They require arranging according to their heights, as well as according to their blooming season, when grown in collections, for some are early, others very late. Every year produces novelties, but many of the varieties are similar; consequently a few showy and strikingly different sorts should be selected, and these are very desirable in a flower garden. In choosing Phloxes those which are dwarf and most abundantly bloomed, with individual flowers large and quite circular, should be selected. They grow well in any good light garden soil if the situation is not too dry in summer, but thrive better in beds of peat soil. In sandy loam, enriched with equal parts leaf-mould, they also grow very luxuriantly. If in beds by themselves, and the plants are small, they require to be planted about a foot apart. They are propagated by parting the root, and may be raised from seed: the former perpetuates any approved variety, the latter gives us a chance of obtaining new ones. The established sorts are propagated by dividing the roots, and the plants should be allowed to remain two or three seasons, for they are the better for spreading out a little. New varieties are obtained from seed, which should be sown about May, and the young plants planted in rows in a nicely prepared bed. In the next season when they bloom the best are to be selected for special culture: the others serve as good border flowers. The dwarf trailing sorts are very beautiful for rockwork not too much exposed to drought.

P. Drummondii, an annual species, is one of the greatest acquisitions of late years to the list of popular flowers, and many varieties of it have been raised, deserving all the pains that can be taken with them for the border, and forming also the most showy of flowering plants for pots during summer. The colours vary a good deal, and there is no dependence on any seed bringing plants quite similar in colour to the parent; but the general form of the plant, and its pretty and abundant blooming habit, are maintained. The seed should be sown in gentle heat in March or April, and as soon as the plants are large enough to handle they are to be pricked out an inch apart in wide-mouthed pots, where, for economy of space, they may remain for three or four weeks, and may be kept in the greenhouse or in a frame. When they have grown so as

almost to touch one another they may be potted separately in pots three inches across, and placed under a garden light, where, if need be, they can be covered against frost. Here they may remain with all the air that can be given in mild days until their roots fill the pots, when they must be removed to five-inch pots, changing them without breaking the balls of earth. They may be replaced in the frame, unless the chances of frost have gone by, in which case the pots may be placed in the open air. By giving them all the air possible the plants are kept from being drawn up tall and weak. They may either be allowed to bloom in these pots, or be shifted once more, whichever is preferred: those which indicate fine growth may be worth another change. They will flower well in the greenhouse, and form some of the prettiest objects among potted annuals. They do well in the flower garden, too, in nice sheltered situations, if planted out in beds of rich light earth towards the end of May.

PHŒNIX. DATE PALM. [Palmaceæ.] Palms. Good loam. Seeds, which should be reared in heat. *P. dactylifera*, the only one which will thrive in a greenhouse, is ornamental in habit.

PHŒNOCOMA. [Compositæ.] Greenhouse evergreen shrubs, requiring the treatment of *Helichrysum*. Sandy peat. Cuttings in sand under a bell-glass. *P. prolifera*, flowers crimson.

PHORMIUM. NEW ZEALAND FLAX. [Liliaceæ.] Hardy herbaceous perennial. Loam. Division. *P. tenax* is ornamental in foliage and habit.

PHOTINIA. [Pomaceæ.] Fine-foliaged hardy evergreens for a wall. Sandy loam. Budding on the Hawthorn. *P. arbutifolia*, *P. dubia*, *P. integrifolia*, and *P. serrulata* are the principal.

PHYCELLA. [Amaryllidaceæ.] Beautiful greenhouse bulbs, allied to *Habranthus*, most of them hardy enough to grow in a frame or pit, or in a warm dry border, slightly protected. Soil, strong rich loam. The general treatment of *Amaryllis* is adapted to them. Propagated by offsets or by seeds.

PHYLICA. [Rhamnaceæ.] Greenhouse evergreen shrubs. Peat and loam. Cuttings in sand under bell-glasses.

PHYLLOCLADUS. [Taxaceæ.] Greenhouse evergreen trees. Loam. Cuttings of mature shoots in sand under a glass. *P. rhomboidalis*, and *P. trichomanoides*.

PHYLLODOCE. [Ericaceæ.] Pretty little shrubs, allied to *Dabœcia* and *Menziesia*, and requiring the same treatment. Peat. Layers.

PHYSALIS. WINTER CHERRY. [Solanaceæ.] A genus containing a hardy perennial, ornamental in autumn on account of its orange-coloured berries. Common soil. Division. *P. Alkekengi*, which flowers white, is the principal one cultivated.

PHYSOLOBIUM. [Leguminosæ, § Papilionaceæ.] Greenhouse evergreen climbers, allied to *Kennedyia*. Peat and loam. Cuttings and seeds. The best are *P. carinatum*, flowers scarlet; *P. Stirlingii*, flowers scarlet.

PHYSOSTEGIA. [Lamiaceæ.] Fine hardy perennials. They require the same treatment as *Dracocephalum*, and may be propagated in the same way, both being also increased when requisite by seeds sown in May or June, to produce blooming plants for the following year. *P. imbricata*, flowers pale rose purple. *P. speciosa*, flowers rose pink. *P. Virginiana*, flowers red or white.

PHYTEUMA. [Campanulaceæ.] Handsome hardy perennials, of easy culture in a dryish situation, and in good garden soil. There are about a score of species. They are many of them suitable for rockwork, and may be multiplied either by seeds or by division.

PICEA. SILVER FIR. [Coniferæ.] Fine hardy evergreen trees. Good stiff soil. Seeds, or the rarer sorts by grafting, &c. The best are *P. amabilis*, *P. balsamea*, *P. Cephalonica*, *P. grandis*, *P. nobilis*, *P. Nordmanniana*, *P. pectinata*, *P. Webbeana*.

PILEWORT. FICARIA.

PIMELEA. [Thymelaceæ.] Pretty greenhouse evergreen shrubs, including some of the more ornamental objects of modern culture. They are plants of a dense-branching habit, with slender foliage, and bearing at the tips of the branches close heads of blossoms, which, coming all over the plants, are very conspicuous. They require some care in their management. The proper soil for them is a mixture of three

parts sandy fibry peat soil to one of light loam, rendered a little sandy, and more especially so for the young plants. They are raised by cuttings in sand under bell-glasses, or sometimes by grafting. As soon as they are separately established in little pots they must be topped, and this topping must be continued as often as new shoots of two or three inches long are pushed forth, until a thick dense bush is produced; then it may be allowed to flower, and it will regulate its own growth for the most part. The greenhouse, with plenty of air and a moderate degree of shade in hot sunny weather, is the place for them; and this, from June till August inclusive, may advantageously be exchanged for a cold frame, elevated so that there is a circulation of air beneath, and provided with sashes to be put on, but not closed up, during continued and heavy rains, and also in the middle of hot days, and then with a shading over them. Pimeleas are easily killed by neglect of watering in drying weather, and not less easily by over-watering in gloomy weather or in winter. The best are *P. decussata*, flowers pink. *P. Hendersoni*, flowers deep rose pink. *P. linifolia*, flowers white. *P. Nieppergiana*, flowers white. *P. spectabilis*, flowers flesh-coloured.

PIMPERNEL. See ANAGALLIS.

PINK. See DIANTHUS.

PINUS. PINE TREE. [Coniferæ.] Fine hardy evergreen trees. Good light soil. Seeds, or the rarer sorts by grafting. The principal are *P. Jeffryana*, *P. monticola*, *P. cembra*, *P. excelsa*, *P. Lambertiana*, *P. laricio*, *P. Lindleyana*, *P. pinaster*, *P. pinea*, *P. ponderosa*, *P. Sabiniana*, *P. strobus*, and *P. Benthiana*. There are numerous other very striking species in cultivation.

PITCHER PLANT. See NYMPHÆTES.

PITTOSPORUM. [Pittosporaceæ.] Greenhouse evergreen shrubs, more remarkable for their evergreen foliage than for the attractiveness of their blossoms, which are small, and mostly white or straw-coloured. *P. Tobira* stands against a wall in the climate of London. They should be potted into a compost of peat and loam, and increase by cuttings or by seeds. The best two are *P. flavum*, flowers yellow; and *P. undulatum*, flowers white.

PLAGIOLOBIUM. [Leguminosæ, § Papilionacæ.] Greenhouse evergreen shrubs, with purple flowers. Sandy, fibry peat. Cuttings in sand under a bell-glass.

PLANTAIN TREE. See **MUSA.**

PLANTIA. [Iridacæ.] Greenhouse bulb. Sandy loam. Offsets or seeds. *P. flava*, flowers yellow.

PLATYCODON. [Campanulacæ.] Very beautiful half-hardy perennials, with fleshy roots, which are liable to suffer from excess of damp. Sandy loam, well enriched for the mature plants. Propagated most favourably by seeds. *P. Chinense* is the only one we cultivate: the colours vary from white to all the shades of blue.

PLATYLOBIUM. [Leguminosæ, § Papilionacæ.] Greenhouse evergreen shrubs. Fibry peat, with a little sandy loam. Cuttings in sand under a bell-glass, or seeds. *P. formosum* and *P. triangulare* flower yellow.

PLATYLOMA. [Polypodiaceæ.] Greenhouse or half-hardy evergreen ferns. Turfy loam and peat. Division. *P. atropurpurea*, half hardy, *P. Brownii*, *P. calomelanos*, *P. cordata*, *P. falcata*, *P. rotundifolia*, are the chief varieties.

PLATYSTEMON. [Papaveracæ.] Pretty annuals of prostrate habit: they like a cool situation and a peaty soil, but will grow in any rich light earth. Sow about the middle of April. *P. Californicum*, flowers sulphur yellow.

PLATYSTIGMA. [Papaveracæ.] Half-hardy perennials, allied to *Platystemon*. Light soil. Seeds or division. *P. lineare*, yellow.

PLEROMA. [Melastomacæ.] Beautiful stove shrubs, closely allied to *Melastoma*. *P. elegans* is a beautiful species, requiring a temperature intermediate between a stove and a greenhouse, but may be grown very well in a greenhouse if carefully sheltered in the colder parts of the year, and under such treatment bears much richer-coloured flowers than in a higher temperature. Soil, peat and loam. Cuttings.

PLUM. See **PRUNUS.**

PLUMBAGO. **LEADWORT.** [Plumbaginacæ.] Pretty plants, with flowers somewhat like those of the *Phlox*. The majority are shrubs. Some few are herbaceous, among which is *P. Larpentæ*, which is hardy, of dwarf compact habit, and suitable for rockwork. *P. Capensis* is a desirable greenhouse

shrub, which is most frequently grown too fast, and is therefore generally seen as a rambling plant. Soil, two-thirds loam and one-third peat. The object should be to keep the plant dwarf and bushy; it is sure to grow long enough after all the pains taken on it. Cuttings may be struck in sandy soil with or without bottom heat, covering them with a bell-glass after inserting them. When rooted pot them singly in three-inch pots, and as soon as they fairly start into growth take off the tops to encourage the lateral shoots: when they fill their small pots with the roots remove them to larger ones. By continually checking any of the branches that ramble out of form the plant can be grown a very pretty object. Some of the stove species are desirable.

PODALYRIA. [Leguminosæ, § Papilionaceæ.] Greenhouse evergreen shrubs. Turfy peat and sandy loam. Cuttings in sand under glass, or seeds.

PODANTHES. See **STAPELIA.**

PODOCARPUS. [Taxaceæ.] Half-hardy evergreen shrubs, or trees rather, suitable for a large winter garden. Loam. Cuttings of ripe shoots in sand under glass.

PODOLEPIS. [Compositæ.] Pretty half-hardy annuals. The seeds may be sown in pots or on a mild hotbed in March, and planted out into sheltered situations in May for early blooming. A later crop may be had by sowing in the open ground in April, and a still further succession by sowing in May. The plants must be well thinned: they grow a foot or upwards in height in rich light garden soil. *P. chrysantha*, yellow, and *P. gracilis*, flowers rose or white, are the best.

PODOLOBIUM. [Leguminosæ, § Papilionaceæ.] Showy greenhouse evergreen shrubs, with holly-like leaves and pea-like flowers. They may be managed as Dillwynia. *P. heterophyllum*, flowers yellow. *P. staurophyllum*, flowers orange yellow. *P. trilobatum*, flowers orange yellow.

PODOTHECA. [Compositæ.] Annuals of no great beauty. They may be sown in the open borders in March or April.

POINCIANA. FLOWER FENCE. [Leguminosæ, § Cæsalpinieæ.] Fine shrubs, mostly tender. *P. Gilliesii*, from Mendoza, is, however, hardy enough for a wall, and flowers freely in the climate of London on a west aspect. Sandy loam and peat. Cuttings in sand in heat.

POINSETTIA. [Euphorbiacæ.] Stove shrubs, whose flowers are insignificant; but the bracts, which spread round the base of the head of proper though trifling flowers, as if they were part of the flower itself, are splendid. They grow well in two-thirds loam, with one-third peat or leaf-mould, to which sand must be added. Cuttings of two joints, one under and one above the surface, soon strike root in bottom heat; they must then be potted into moderately small pots, say forty-eights, or five-inch ones, and be grown in the stove, being shifted from time to time as they fill the pots with fibres, and freely supplied with water when in full growth. When the plants have done flowering they should be kept nearly dry till spring, and then may be cut down to within two or three eyes of the ground, and the shoots cut off used for increase. Single eyes—an inch of wood with the joint in the middle—planted round the edge of a pot, and the pot plunged in a gentle bottom heat, will root, and form young plants, which, when large enough, must be potted singly and grown as cuttings. The plants may be had in bloom at any period, according to the time when they are started into growth. If started in spring, not too early, and grown slowly on, they come into flower in autumn or the early part of winter, and last a long time. There is but one species cultivated, *P. pulcherrima*, in which the large leaf-like bracts are of a most brilliant scarlet; but there is a variety called *albida*, in which the bracts are of a yellowish white or cream colour.

POIVREA. [Combretacæ.] Stove evergreen climbers, related to Combretum, and requiring the same treatment. They are very handsome plants. Increased by cuttings planted in sand, and placed where there is a slight bottom heat. Soil, peat and loam, with sand.

POLEMONIUM. GREEK VALERIAN. [Polemoniaceæ.] Ornamental hardy perennials of easy culture, growing readily in ordinary good garden soil, and increased by division of the plant, and generally very freely by seeds, which should be sown in June to produce flowering plants for the next year.

POLIANTHES. TUBEROSE. [Liliacæ.] Greenhouse bulbs, annually imported from Italy. Soil, a rich sandy

loam. Increased by offsets. When in growth they are benefited by warmth at the root.

POLYANTHUS. See PRIMULA.

POLYGALA. MILKWORT. [Polygalaceæ.] An extensive genus, containing about an equal number of greenhouse shrubs, hardy perennials, and hardy annuals. The former are the most important in an ornamental point of view, consisting of free-flowering evergreen shrubs. They are raised from seeds and cuttings. The former should be sown in the spring, and started in a hotbed; then inured to the warmest part of the greenhouse by covering them with a bell-glass for the first day, tilting it a little the second, and taking it off the third. When large enough they may be potted singly in three-inch pots, and changed to larger ones as these fill with roots. Cuttings may be struck in sand under a bell-glass with a little bottom heat, the glasses being wiped every day: when rooted they are to be treated like the seedlings. The best soil is turfy loam two parts, and peat one part. The hardy kinds, with the exception of *P. chamæbuxus*, a very dwarf tufted evergreen shrub, well suited for planting, with other small subjects, near the edge of a clump of American plants, are of little importance in a garden. *P. cordifolia*, flowers purple. *P. Dalmaisiana*, flowers purple. *P. myrtifolia*, flowers purple. The variety *grandiflora* is the best. *P. oppositifolia*, flowers purple. All these are greenhouse evergreen shrubs.

POLYGONATUM. SOLOMON'S SEAL. [Liliaceæ.] Hardy herbaceous perennials. Common soil. Division.

POLYGONUM. PERSICARIA. [Polygonaceæ.] A large genus, not remarkable for floral attractions. There are, however, exceptions. *P. orientale*, a common hardy annual, which is best self-sown, grows four or five feet high, much branched, with many gracefully nodding spikes of small red flowers, which become conspicuous from their aggregation. It requires no culture, but if sown artificially it may be done in March. *P. amphibium* is a beautiful hardy water plant, with short floating stems, and rosy flower-spikes. *P. divaricatum* is a pretty hardy perennial, densely branched, forming a large mass, covered with feathery-looking bunches of creamy-white flowers. It is of the easiest culture in common soil,

and increases by division. *P. vacciniifolium* and *P. Brunonis* are beautiful rock plants: they increase by their self-rooting trailing branches.

POLYPODIUM. POLYPODY. [Polypodiaceæ.] Ferns. The hardy Polypodies are good ferns for rockwork, *P. vulgare* and its varieties, of which *P. Cambricum* is one of the handsomest of hardy ferns, being evergreen. There are a great many exotic Polypodies requiring a stove temperature. They are rather coarse, but still noble plants if they have room to develop themselves: they consequently require large pots, and good rough turfy peat soil, well drained, should be used for them. *P. alpestre*, hardy. *P. drepanum*, greenhouse. *P. dryopteris*, hardy. *P. hexagonopterum*, hardy. *P. phegopteris*, hardy. *P. Robertianum*, hardy. *P. rugulosum*, greenhouse. *P. vulgare*, hardy. *P. vulgare Cambricum*, hardy.

POLYSTICHUM. [Polypodiaceæ.] Evergreen ferns, including some common native, though very beautiful species. The most graceful of these is the *P. angulare*, a species of which there are a variety of forms, but all remarkable for their compound structure and gracefully drooping habit. The hardy kinds are beautiful subjects for rockwork, on account of their elegant habit and evergreen character: they grow in cool shady places in turfy soil. The tender species require a greenhouse or stove, and the ordinary treatment of indoor ferns. The following are cultivated.—*P. aculeatum*, hardy; *P. angulare*, hardy, *P. Capense*, greenhouse; *P. falcinellum*, greenhouse; *P. lonchitis*, hardy; *P. pungens*, greenhouse; *P. vestitum*, greenhouse.

POMEGRANATE. See **PUNICA.**

PONTERERA. [Pontederaceæ.] Aquatics. Rich strong loam. Division. The flowers are blue and pretty. *P. angustifolia*, *P. carulea*, *P. cordata*, and *P. lanceolata* are all natives of North America.

POPPY. See **PAPAYER.**

PORPHYROCOMA. [Acanthaceæ.] Stove evergreen soft-wooded shrubs, easily multiplied by cuttings placed in a hotbed. Compost, loam and leaf-mould in equal proportions. *P. lanceolata*, flowers violet.

PORTULACA. PURSLANE. [Portulacææ.] A genus

containing some hardy annuals of little interest, and other species of considerable beauty, which may be treated as half-hardy annuals. They require a light rich soil and a warm sunny situation: when both soil and situation agree with them they form very fine objects. Grown carefully in pots for the greenhouse, they are also very ornamental. The seeds should be sown in a hotbed early in March, and the plants nursed on in frames not too warm, being at first potted singly, and then shifted on as they may require until the beginning of June, when they may be either planted out or shifted finally for blooming in pots.

POTENTILLA. CINQUEFOIL. [Rosaceæ.] Hardy perennials, now becoming popular, and comprising some fine garden varieties, as well as very handsome species. They grow best in loamy soil rich in vegetable matter, but not too full of dung. The roots should be taken up early in autumn, and parted, each crown or heart, with root attached, forming a plant. these may be either planted in a bed to become established, or put out at once in the borders or the flowering-beds. A bed filled with the varieties of *Potentilla* has a very fine effect during the chief of the summer months. Seedlings should be raised from the best varieties to obtain distinct kinds.

PRICKLY POPPY. See ARGEMONE.

PRICKLY THRIFT. See ACANTHOLIMON.

PRIMULA. PRIMROSE. [Primulaceæ.] Beautiful dwarf tufted-growing herbaceous perennials, nearly all of which are hardy as respects cold. Of *P. vulgaris*, the common Primrose, there are double-flowered varieties of several colours. These grow best in a cool, moist, but well-drained situation, and prefer a soil of light loam intermixed with decayed tree leaves. They are propagated by dividing the tufts into separate crowns with roots attached, which may be done in spring, and the young plants planted out in cool shady situations: by the following spring they will become strong blooming plants. One variety of Primrose produces a bunch of flowers on the top of a common stalk, and this appears to be the origin of the garden plants known as Polyanthes. Most of the hardy species of *Primula* are extremely beautiful subjects in a pot collection of alpine plants, blooming in the spring

months, between March and May. This class may be grown in pots or on rockwork, in peat and loam, and require chiefly to be kept cool and moist in summer, but in winter must be kept rather dry as well as cool. Seeds of these may be sown about May, that the plants may acquire strength before winter.

PRIMULA AURICULA.—The cultivated varieties of this species of *Primula* are commonly known as the Auricula. There is hardly a flower that presents such an appearance of artificial structure as the Auricula: the surface appears covered, like a butterfly's wing, with a powder, which the touch of the finger brings off, thereby spoiling the flower. A stage of Auriculas is a really beautiful sight. Some old books on the culture of this flower recommend the most nauseous composts for its growth; it is, however, absurd to pretend that anything disagreeable is necessary for the purpose. Loam from rotted turves two-thirds, and decomposed dung fairly rotted into mould one-third, will be found excellent compost for them to grow in; and if the loam be a little adhesive, which it ought not to be, some silver sand may be mixed with it. The pots in which they grow should be one-third filled with broken pots, to secure complete drainage, and in potting the plants the fibres of the roots should be spread out all round. The best way is to put the soil into the pot in the form of a cone, highest in the middle, and nearly as high as the edge of the pot; put the plant on this, with the fibres spread all round, and press it down on the soft light mould, so that the collar of the plant shall be just below the level of the edge of the pot; press the soil a little to the roots as the pot is filled, and water it. The Auricula may be grown to perfection in a common garden frame, with a glass to keep off heavy rains and hard frosts. It requires but little water all the winter. In February the surface of the mould should be stirred a little and thrown out, and the pots filled up again with a top-dressing of decomposed poultry-dung, sand, and cowdung rotted into mould, equal parts; and from this time they may be regularly watered, have air on fine days, and be covered at nights and in frosty weather. In April, when in bloom, they must be shaded, or the sun would spoil the flowers.

PRIMULA SINENSIS.—The Chinese Primrose, sometimes called *P. pranitens*, is one of the most useful of plants for greenhouse decoration in winter and spring, and is admirably adapted for culture as a window plant. It forms a very important feature in the greenhouse at a period of the year when there is little else in flower, and is so much improved since its introduction that the flower may be seen twice or three times the size it used to be, with colours more brilliant, the form circular, and in every way improved. This is entirely owing to the ordinary mode of improving races by raising plants from seed. To raise these properly sow the seed in June, towards the latter part, in wide-mouthed pots, for it is better to have a good body of mould under seeds than the reduced quantity contained in seed-pans. For a compost use two-thirds turfy loam and one-third sand. The soil should be tolerably dry, and made moderately firm, the surface being even with the top edge of the pot. Sow the seeds very thinly, but evenly, and press the surface down with the palm of the hand, and then sift some soil very finely all over it, but not to cover more than the thickness of a shilling. Put the pot in the stove, or a pinery or vinery, or warm frame, or, in default of these, in a greenhouse or ordinary frame. Water by splashing with the hand from the hairs of a wetted brush, holding the hairs upwards, and drawing the hand along the hairs, which will throw the water off in such small particles that it will not disturb the seed. When the seedlings are up give air and water as occasion requires, and when they have formed rough leaves prick them out an inch apart all over a seed-pan, or as many pans as will hold them. Here they may grow a month, or until they touch each other; then pot them off singly in three-inch pots, with a soil composed of turfy loam, decomposed cowdung, turfy peat, and sand, and put a layer of crocks to reach one third of the height of the pot. They may be well watered to settle the earth about their roots. Place them in the greenhouse close to the light, and let them have as much air as possible in mild weather. Here they are to stand just long enough to allow the best to be selected for further trouble. The best thus selected are to be marked, and to have the blooms picked off; and when they fill their pots with roots remove them to eight-

inch ones, and continue them near the light. When they flower again they will throw up immense trusses. There are already various shades of red and rosy lilac, as well as white and mottled; some are smooth-edged, and others fimbriated on the margin of the corollas.

PRIMULA POLYANTHUS (*P. vulgaris umbellata*). — The Polyanthus is a well-known hardy perennial, blooming early in spring. Its flowers, variegated and richly coloured, are elevated several together on the top of a common stalk. Of the same habit are the wild species, *P. elatior*, the Oxlip, and *P. veris*, the Cowslip, both of which, together with the common Primrose, are favourite subjects for planting in shrubberies, and in other shady parts of the flower garden and pleasure-ground. These, with the Polyanthus, prefer a heavier loamy soil than that already recommended for double Primroses. They are propagated by division of the roots, and may also be raised from seeds. The seeds should be sown in March in boxes of fine soil, put in a cool frame, and kept moist. The plants, as soon as they can be handled, may be pricked out an inch apart in other boxes, and when large enough planted out in beds of the soil already mentioned. For varieties it is best to consult the most recent florists' lists.

PRINCE'S FEATHER. See AMARANTHUS.

PRIVET. See LIGUSTRUM.

PRONAYA. [Pittosporaceæ.] Greenhouse evergreen twining shrub. Peat and sandy loam. Cuttings in sand under glass.

PROSTANTHERA. [Lamiaceæ.] Greenhouse evergreen shrubs. Sandy, turfy peat. Cuttings in sand in a hotbed. *P. violacea* is very beautiful.

PROTEA. [Proteaceæ.] Greenhouse evergreen shrubs. Sandy, turfy loam. Cuttings of ripe shoots in sand, or by imported seeds.

PRUNELLA. [Lamiaceæ.] Hardy herbaceous perennials, all with purple flowers. Common soil. Division.

PRUNUS. PLUM. [Drupaceæ.] Hardy deciduous trees. Dryish loamy soil. Grafting or budding.

PTERIS. [Polypodiaceæ.] An extensive genus of ferns, chiefly greenhouse. Peat and loam. Division. *P. arguta*,

P. Cretica, *P. hastata*, *P. intramarginalis*, *P. Kingiana*, *P. longifolia*, *P. macrophylla*, *P. serrulata*, *P. tremula*, and *P. umbrosa* are all cultivated.

PULTENÆA. [Leguminosæ, § Papilionaceæ.] Beautiful greenhouse evergreen shrubs, flowering yellow. They may be treated as Dillwynias and Chorozemas. Sandy peat of fibry texture. Cuttings in sand under bell-glasses. *P. ericoides*, *P. obcordata*, *P. stipularis*, *P. stricta*. Most of the species are showy.

PUNICA. POMEGRANATE. [Myrtaceæ.] Beautiful deciduous tree, suitable for walls. Light rich soil. Cuttings, layers, or grafting. The only one grown in our gardens is *P. granatum*, flowers red or whitish, single or double, in July.

PYRETHRUM. FEVERFEW. [Compositæ.] A rather large genus, consisting mostly of hardy perennials of the easiest culture, not very ornamental, with the exception of a double-flowered variety of *P. Parthenium*, which is showy, blooming in profusion throughout the summer and autumn; the plant has, however, a strong bitter aromatic scent—that of feverfew—which is not very agreeable. This variety is multiplied by cuttings, planted during summer under a hand-glass; the other hardy kinds by division. There are also some free-growing greenhouse shrubs of little importance.

PYRETHRUM SINENSE (*Chrysanthemum*).—This popular plant is quite hardy; but as it blooms late in autumn, just at the season severe frost often occurs, it sometimes happens that outdoor plants which are one day in full beauty and almost the only ornaments of the garden, are the next day blackened and cut up by the frost. The variety both of colour and form afforded by these flowers renders a collection interesting, and they have now become quite popular. For high culture the plants require to be renewed every year by cuttings—they will spread in the ground and bloom for years; but if a dwarf plant is wanted, and the flowers are required in perfection, they must be renewed by cuttings. One plan, the object of which is to secure small dwarf plants in pots, is, in July, when the plants have grown two feet or more in height, to take off the tops three inches long, cut off the lower leaves, plant them in sandy soil, and cover with a hand-glass, they must be kept moist, and the pot set in a gentle hotbed, and

the glass wiped every morning. In a short time they will strike root; then pot them in five-inch pots, and grow them in the open air in a situation where they will not have all the sun of mid-day. The soil in which they are potted should be loam and rotted dung, with a little silver sand. When the blooms are showing they may be changed into larger pots, and removed into the house, where they will bloom in perfection. The plants, having nearly expended their growth before the tops were taken off, the cuttings have not much more growth to develope, and therefore bloom in a dwarf state. There are other ways of growing this plant. The young suckers, or shoots from the root, may be taken off in November, placed in a cool frame till well rooted, and then potted singly in light rich soil, and protected in a cold well-aired frame until May, when they may be set out of doors in an open place until the end of September. They must have several good shifts, and the tops may be twice or thrice pinched out, after two or three inches' growth, to produce bushy plants. In this way large plants are formed, which become very ornamental. In all cases the plants should have weak liquid manure or clarified soot-water at every other watering from the time the flower-buds show distinctly: nothing else is so effective in producing fine high-coloured flowers.

There are two distinct classes of *Chrysanthemums* now cultivated—one tall-growing, with large flowers; the other dwarf, compact, with numerous smaller flowers: both are highly ornamental, the latter class, called *Pompones*, being perhaps the most useful where only small greenhouses are available for blooming them. These require stopping like the others, and may be made to branch wonderfully by good culture, and by spreading out the stems somewhat. *Chrysanthemums* grow well against walls, and bloom magnificently if the season proves favourable. They are also almost unaffected by the smoke of cities and towns.

PYROLIRION. FIRE LILY. [*Amaryllidaceæ*.] Pretty greenhouse bulbs, which should be potted in sandy loam, and are the better for a little extra heat to start them into growth. They are multiplied by offsets. *P. aureum*, flowers golden colour. *P. flavum* also flowers yellow.

PYRUS. See CYDONIA.

QUAKING GRASS. See BRIZA.

QUAMOCLIT. [Convolvulaceæ.] Twining plants, the annual species of which should be raised in a mild hotbed about March, kept in frames until May, and so hardened off before final planting out as to bear the exposure without injury. They make pretty objects for the flower garden; for, though their flowers are small, they are brilliantly coloured.

QUERCUS. OAK. [Corylaceæ.] A large genus of valuable timber trees, some of the pendulous varieties of which, and all the evergreen species, especially *Q. ilex* and its varieties, are ornamental. Deep rich loam. Propagated by seeds; the varieties chiefly by grafting.

QUINCE. See CYDONIA.

RANUNCULUS. CROWFOOT. [Ranunculaceæ.] A large genus, comprising many annual weeds and aquatics, but chiefly consisting of hardy herbaceous perennials, some of which are ornamental. It includes the common Crowfoot, the buttercups of the meadows, as well as the florists' Ranunculuses, which have sprung from *R. Asiaticus*. The cultivation of these beautiful flowers has puzzled florists a good deal. There is, however, one kind of compost in which they will thrive, and it is worth while to be at some pains to get it. It is obtained thus:—Cut from a good loamy pasture the surface sod three inches thick, let these be piled on one another in ridges for a year, and then sliced down with a sharp spade so as to form a crumbly mass: set a sharp boy or two to turn this over and pick out all the wire-worms, grubs, and earwigs, and any other living pest they can discover. This done, let it be packed into a heap again, and remain another year, by which time all the herbage will have resolved itself into that kind of mould which, if separate, we should call vegetable mould. At the end of the second year let it be again turned and examined in the same way to clear completely any remaining intruders. This soil, thus cleared of vermin, will grow the Ranunculus well. Composts of a stimulating and exciting character are used by some for the sake of getting the flowers a little larger, but there is always the risk of doing mischief; and those who have grown them on the stimulating plan have occasionally

been visited by disease and lost many of their tubers. In this loam, then, enriched as it is by vegetable mould, plant the roots about the middle of February two inches below the surface, and press the earth close about them. When they come up keep them clear of weeds, and as they break the ground loose about them crumble it, and keep it pressed close round them. Water them freely in hot weather, and the instant they show the colour of their blooms keep the sun off they will very well repay the trouble. When the flowers are over, and the leaves are turning yellow, take up the tubers, and keep them out of ground till planting time. Common sorts are planted in the autumn, but the best in February. They may be raised from seeds in the same way as Anemones.

RELHANIA. [Compositæ.] Greenhouse evergreen shrubs. Light peat and loam. Cuttings in sand under a bell-glass *R. squarrosa* and *R. genistifolia* flower yellow in May.

RESEDA. MIGNONETTE. [Resedaceæ.] The botanical name of the Mignonette is *Reseda odorata*. This universally-admired annual is one of the most controllable of all plants. No matter when it is sown or where—in the smoky atmosphere of London, the free air of the suburban villa, the green boxes that stand outside the window, the border of the pavement, the pent-up pots in the London markets—it is obedient. Sow the seeds, and the plant, bloom, and seed soon reward us. It may be sown four times a year with advantage in boxes, pans, or pots, and may be planted out anywhere three or four in a patch. It may be sown in pots, and be thinned, the plants taken out being transplanted somewhere else. If in winter the pots must be kept in the greenhouse, or in pits, or frames with glasses; if in summer they may be in the open air. No plants will bear rougher treatment; none sooner show when they have been removed to better soil. Mignonette is nothing to look at except by means of a magnifying glass; it makes no show, but its scent, which has no superior among all the fragrant flowers of the garden, will always secure for it a place in the most *recherché* collections. Scatter the seed upon the borders; let the plants come up like weeds; they are acceptable anywhere—everywhere It

is so nearly hardy that we have seen the old plants and young seedlings from the self-sown seed standing side by side after a mild winter. Mignonette, although an annual, can be struck from cuttings, which in their turn do very well, and almost assimilate the plant to a perennial. They bloom more dwarf under these circumstances, but they are not the worse for that; and as to foliage, generally speaking that is not much to look at after the plant begins to bloom, and does not improve the second year. Large quantities of Mignonette are grown for the market, for which purpose it is generally sown in pots, half a dozen seeds sprinkled in each pot, and all of them submitted to the common garden frames with lights: the seeds are sown about September, and the plants have all the air that can be given all the winter. Of course they keep growing except in frosty weather, and in the spring months rapidly come forward. These plants show bloom very early, before they have grown much, and are in flower until others sown in February and March come in to succeed them. The Mignonette may be had in bloom all the year round by a succession of sowings. A sowing in July brings plants that flower from November till March; a sowing the first week in September will carry on the blooming from March to July; and the spring-sown ones will do the rest. No frost must reach the pots in the winter time, and the earth must be occasionally stirred upon the surface to let in the air.

RESTHARROW. See ONONIS.

RHAMNUS. BUCKTHORN. [Rhamnaceæ.] The most important garden plants of this family are the evergreen shrubs known as *Alaternus*. They are increased by cuttings planted in autumn. Good garden soil.

RHAPIS. [Palmaceæ.] Greenhouse palms. Loam. Suckers. *R. arundinacea*, *R. aspera*, *R. cordata*, and *R. flabelliformis* are all plants of ornamental foliage.

RHEUM. RHUBARB. [Polygonaceæ.] Hardy perennials of coarse habit, but having a fine effect in rough borders, and in situations where bold-looking striking plants are desirable. Good garden soil. Division or seeds.

RHODANTHE. [Compositæ.] A beautiful little half-hardy annual, whose flowers are like so many pink stars

sprinkled all over the branches, and, when well grown, as delicate as the most elegant artificial flowers. The petals are stiff and dry, and, if gathered when in good order, the flowers may be classed among those vulgarly called "everlasting." The soil adapted best for its healthy culture is a compost of loam, decomposed cowdung, turfy peat, and sand; two parts of the loam, and one of each of the rest, well incorporated, and passed through a coarse sieve. In a shallow pan of this compost, gently compressed by striking the pan on the table, and levelled even with the edge, the seeds should be sown in March or April very thinly and evenly; with the hand spread flat, press the surface gently all over, and then with a very fine sieve shake enough compost over the seeds to cover them, and no more. The pan may be placed in a hot-bed or in the stove. When the plants come up let them be thinned a little, drawing out any weeds that may come up with them, and place them close to the glass. In a few days they will be large enough to prick out four or six in a three-inch pot; and as soon as they have taken root they may be put into the greenhouse, and allowed to grow until they nearly touch each other, but they must be kept near the light, and have air in very mild weather. When they are first pricked out they must be shaded a day or two. They may next be planted singly in three-inch pots, and still kept near the glass. In these pots they may continue growing until the roots completely fill the space round the sides, when they may be transferred to five-inch pots, in which they may bloom. Continue to give them plenty of air, plenty of light, and moderate waterings. There are few annuals that compete with them for elegance of form, symmetry, and beauty of flower. The supernumerary pots of five or six plants each—that is, those not required for separate potting—should be set aside and kept in the frames till the middle of May, when they may be turned out into the borders in the patches without being disturbed. Being dwarf, they must be kept near the front. From those in the borders seed may be expected. Be careful to gather it as soon as the flowers lose their bright pink colour, for, as the seed ripens, the petals get paler, and being a composite flower the seed is not within a pod, and would easily be lost: pick off the flowers whole, and

the seed easily rubs out. In warm situations and in light rich soils the seeds for the outdoor plants may be sown in April in the borders, and the patches then merely require thinning out. The only one grown is *R. Manglesii*.

RHODOCHITON. [Scrophulariaceæ.] *R. volubile*, once called *Lophospermum rhodochiton*, is a plant with much the habit and appearance of *Lophospermum*, but more slender; the blossoms have a saucer-shaped rosy calyx, and a deep purple, almost black corolla. The plant is increased by cuttings, which may be put in at any period between March and August in sandy soil, and placed in a close shady place. mild heat assists their rooting. The young plants soon acquire strength when placed in a moderate bulk of compost, which should consist of loam, peat, and leaf-mould in equal proportions, and used in rather a rough or lumpy condition. It is better adapted for the roof of a greenhouse or conservatory than for the open ground, and may be grown to a very pretty state in a large pot, the branches being trained around several upright stakes forming a cylinder. In any case the plants should be renewed annually.

RHODODENDRON. **ROSE BAY** [Ericaceæ.] One of the most ornamental families of evergreen flowering shrubs, comprising great variety both of foliage and flower. Some of the wild species have superb flowers, but the seedlings raised in English gardens carry the splendour of this family greatly beyond that of any of the original species. *R. Catawbiense*, which has the best habit of all the American species, has been so improved from seed that varieties may now be had of almost every colour. The Indian and hardy species, too, have been so crossed, that the most superb varieties have been produced with the best qualities of several species combined. These plants are so improved now that it would be madness to buy the original *R. Ponticum*, or any other that was not of first-rate habit and character, even to plant a shrubbery. All that bear flowers should bear the best flowers, and the *R. Ponticum* would cut a sorry figure, with its mean narrow-pointed stricken foliage, and still poorer flowers, among the splendid varieties that have been raised. They must be seen in flower to be purchased with advantage. Peat soil is the most suitable for these shrubs; but the hardy sorts will grow

well planted either in fibry or heavy loams, which are improved by the addition of vegetable soil. They are propagated in a variety of ways. The common sorts increase plentifully from seeds, which are also resorted to (the flowers having been cross-fertilised) for the raising of new varieties. Sow the seeds in broad shallow pots well drained, and filled with a mixture of two-thirds peat and one-third loam; place them in a cold pit; keep the soil moist, for it must not once dry after the seeds are in. When large enough prick the young plants out at an inch apart into other pots or pans, and as they become larger pot them singly; or, if intended for the open air, plant them in peat beds, giving them room from year to year by taking away alternate plants and putting them elsewhere. They may continue in the beds till they flower. If there be any doubt of their hardiness put hoops and mats over them, but it is useless to raise tender ones while there are so many fine hardy varieties. Approved sorts and rare species are propagated by layering, or by grafting on stocks of the common species; sometimes by cuttings. The varieties raised by crossing the original species are numberless.

RHUBARB. See RHEUM.

RHUS. SUMACH. [Anacardiaceæ.] Hardy deciduous shrubs. Light loam. Seeds, layers, or cuttings.

RIBES. CURRANT. [Grossulariaceæ.] An extensive family of hardy shrubs, well suited for shrubberies. The very best, which grows freely in ordinary garden soil, is the *R. sanguineum*, a deciduous plant, which about May is decorated with drooping bunches of scarlet blossoms. Of this there is a very handsome double-flowered variety, and another in which the blossoms are white. They are propagated either by layers or by cuttings without difficulty. *R. aureum præcox*, flowers yellow. *R. speciosum*, flowers scarlet.

RICHARDIA. [Araceæ.] *R. Æthiopica*, formerly known as *Calla Æthiopica*, is a favourite greenhouse or window plant. It has largish somewhat arrow-shaped leaves and a very showy inflorescence, the white oddly-shaped showy part being, however, not the flowers, but that which covers them—an organ called a spathe. These plants require rest, which they take at the end of summer after bloom is over. Towards winter they begin to grow, and should be then repotted into a

compost of one part good light loam, one part leaf-mould, and one part decayed manure, with sand, &c., as may be requisite. The suckers should be removed if a single-stemmed vigorous plant is preferred; but if larger, thicker plants are required, it is only to shift them on into larger vessels till they get a yard across, when they look very fine, but of course get cumbrous. Small single plants are very pretty, and are certainly preferable for windows. The plants, which form thick fleshy tubers, are to be divided when they are dry and at rest, and the largest tubers or offsets should be selected for flowering. These plants will grow all the winter, and come into a flowering state some time between January and May, according to the time they commenced their growth. It succeeds in a cistern in the greenhouse, and in a tank out of doors during summer.

RICINUS. PALMA CHRISTI. [Euphorbiaceæ.] For ordinary gardens the *R. communis*, or Castor-oil plant, is sufficient. It is one of those plants which, wherever there is room for them, should always find a place, for the sake of their fine expansive palmate foliage. The flowers are curious, but not showy. The seeds should be sown in a hotbed in February, and the young plants potted singly, and grown in the frame for a few weeks, then transferred to the greenhouse or a cooler frame, and finally hardened off in a cold frame, ready for planting out by the end of June. The soil should be made rich for them, for, being grown on account of their foliage, it is desirable to encourage them, that the leaves may be fine and vigorous. The variety called *R. communis minor* is preferable, except where there is abundant space, when the variety *major* may be grown: the leaves of the latter are considerably the largest, though both are large. This plant, though a shrub or tree in its native climate, is destroyed here by our winter, and is therefore treated as a half-hardy annual.

RIGIDELLA. [Iridaceæ.] Beautiful half-hardy bulbs. Sandy loam and peat. Offsets.

ROBINIA. [Leguminosæ, § Papilionaceæ.] Deciduous shrubs and trees, many of them of large size, as is the case with the False Acacia, or Locust tree (*R. pseudo-acacia*), which, besides its elegant pinnate foliage and drooping

racemes of white sweet-scented flowers, furnishes us with a hard and durable timber. For the flower garden and shrubbery, however, the species most appropriate is the Rose Acacia (*R. hispida*), for which the allied species, *R. macrophylla*, may be substituted in situations where there is space for its somewhat larger growth: both bear long drooping racemes of large rose-coloured flowers. The Rose Acacias grow well in moderately good garden soil; but they require rather a sheltered situation, or their brittle branches are liable to be broken by the wind. They should be grown as standards, with a straight stem of three feet or more in height. They are usually grafted on the common False Acacia, and the precaution is generally taken to graft close to the root and a little below the ground, not only to avoid fracture, to which the united parts are liable, but also to facilitate union, which is promoted by drawing up the earth so as to cover all but the top buds of the graft. *R. inermis* is pretty as a standard.

ROCHEA. [Crassulaceæ.] Greenhouse evergreen succulents. Sandy loam. Cuttings. *R. falcata*, flowers scarlet.

ROCK BRAKE. See ALLOSORUS.

ROCKET. See HESPERIS.

ROCK ROSE. See CISTUS.

ROELLA. [Campanulaceæ.] Greenhouse evergreen dwarf shrubs. Sandy peat, with a little light loam. Cuttings in sand under a bell-glass. *R. ciliata*, flowers greyish, with purple centre.

RONDELETIA. [Cinchonaceæ.] Stove evergreen shrubs, well worth cultivating, especially *R. speciosa major*. The plant may be rendered very bushy by culture, and then the best plan is to grow it on, because the flowers come at the ends of all the shoots. Cuttings should be taken when the plant is in flower, selecting the tops of those shoots that have no bloom. They strike very readily in sand, and should not be more than two inches long, one inch of which should be inserted in the sand, and the other above. After watering them in cover with a bell-glass, and place them in slight bottom heat; wipe the glasses daily, and attend well to moisture. When they have struck pot them off singly in three-inch pots, in a compost of equal parts peat and loam, with a little sand. They may at once be placed in the stove

Pinch off the tops as soon as they begin to grow, and then lateral shoots will come; and if these get too vigorous check them also, by which the bushy habit will be developed. When this is secured grow the plant right on, and all the ends of the shoots will give flowers. When the bloom begins to open it should be put into the part of the hothouse that is coolest, preparatory to removal to the conservatory or other place which it is intended to decorate with its flowers.

ROSA. ROSE. [Rosaceæ.] The varieties, colours, and habits of the Rose are almost endless. They are grown either on their own roots, or budded on stocks—that is, stems—of the common dog-rose. When we see the dog-rose grow luxuriantly in a dry bank, among brambles and other plants that seem to choke it, it is hardly reconcilable with the popular notion that Roses require very rich soil; and if one of these briars or dog-roses be budded as it stands in the hedges, the variety so budded on it will grow so strong that we are bound to consider a Rose will grow in anything. There is, however, one consideration which may account for the almost rampant growth of hedge-roses—the roots run to an immense distance, and proceed onwards till they reach the soil that suits them. The Rose will grow well in any soil that will grow a cabbage well. In planting Roses cut all the ragged and damaged parts of the root clean with a sharp knife; if any part of the root is bruised, remove it, plant these the same depth that they have been growing before. prune out all the thin twigs or shoots from the head or bush, cut out all the branches which are in the way of others, cut back all the last year's wood to three eyes, and always make the cut sloping, and just above a bud. When they are growing rub off the buds that are growing inward so as to crowd the head. It is a good plan to prune Roses at two, if not three seasons, for on the pruning the season of bloom depends. The early-pruned ones grow as soon as the unpruned, the latter push the eyes towards the end, while the eyes next the stem do not push at all: by pruning off all the grown eyes, the ungrown ones have to begin their growth when the pruned bushes have grown for a month, and thus later flowers are obtained.

ROSE ACACIA. See ROBINIA

POSE BAY. See RHODODENDRON.

ROSMARINUS. ROSEMARY. [Lamiaceæ.] Hardy ever-green aromatic shrubs. Light dry soil. Cuttings.

RUBUS. BRAMBLE. [Rosaceæ.] Hardy trailing shrubs for the most part. Rich loam. Cuttings and layers. A very extensive genus; for the most part are adapted for gardens.

RUDBECKIA. [Compositæ.] Showy hardy herbaceous perennials, from which the species of *Echinacea*, *Obeliscaria*, *Centrocapha*, and *Dracopsis* have been separated. Increased by seeds sown in May, to produce flowering plants for the next year, or by dividing the old roots any time in autumn or spring, and planting the divisions with pieces of root attached. They grow readily in any good common soil.

RUSCUS. BUTCHER'S BROOM. [Liliaceæ.] Hardy ever-green under-shrubs. Common soil. Suckers.

RUSSELIA. [Scrophulariaceæ.] *R. juncea* is a beautiful drooping stove plant, with long pendulous branches, and bearing in summer splendid scarlet tubular flowers. The plant, if well grown, and not too rapidly advanced, produces such an abundance of bloom, that when in flower it is a most striking object, even in large collections; but if it be forced too much the plant is not half covered. Fibry loam and turfy peat, well mixed, good drainage one-third up the pot, and a heat of 65° to grow in by day, and 60° at night in the winter time, will bring the plant forward in perfection. This plant must have but one-size shifts at a time from the first potting into three-inch pots, into five-inch, and from five to six, and so on until it is in a No. 4. This shifting must not take place until the respective pots are well filled with roots. When once well established it will bear a good deal of water; but the cuttings and small plants must only be kept moderately moist. Cuttings root freely in sand on the top of the usual soil; but they require a little bottom heat, and a bell-glass to cover them, and this must be wiped daily. The plants hang down all round the pot, which must be placed on a pedestal in full light, and be constantly turned, that it may be all round alike.

SABBATIA. [Gentianaceæ.] Hardy or half-hardy biennials and perennials. They grow best with the aid of a green

house during the period of their growth. Peat, each kept moist. Seeds or division.

SAGE. See SALVIA.

SAGITTARIA. ARROW-HEAD. [Alismaceæ.] Aquatic perennials, requiring various degrees of temperature. Rich loamy soil. Division. The plants require to be placed in water.

ST. DABEOC'S HEATH. See DABŒCIA.

ST. JOHN'S WORT. See HYPERICUM.

SALISBURIA. MAIDEN-HAIR TREE. [Taxaceæ.] Hardy deciduous tree, ornamental on account of its habit and singular Maiden-hair-like foliage. Sandy loam. Layers or cuttings. *S. adiantifolia* is the only species cultivated.

SALIX. WILLOW. [Salicaceæ.] A large genus of deciduous shrubs and trees, a few of which are ornamental. Moist soil, rather loamy. Cuttings of the stouter shoots planted in autumn.

SALPIGLOSSIS. [Solanaceæ.] Annuals or biennials of a showy character, requiring the protection of a frame or greenhouse in winter; and, except in very sheltered situations, where they may be planted out in summer, suited rather for pot culture indoors than for the open air. They may be managed very much in the same way as the biennial species of *Schizanthus*. They require a light and rich compost. Probably they are all varieties of the same species. When well cultivated they are showy plants.

SALVIA. SAGE. [Lamiaceæ.] There are two kinds of *Salvia* highly esteemed for the brilliance of their flowers—*S. splendens*, scarlet, and *S. patens*, brilliant blue; but there are many more that have nearly equal claims, and scores that are merely weeds. Some of them are hardy, some half hardy; some require a stove, some a greenhouse. *Salvias* grow freely in any moderately good soil, the best being a light loam with a third of rotted dung. The greenhouse kinds do well planted out in May, and potted up again in September, and are the better propagated annually by cuttings in July or August. The herbaceous sorts, or half-shrubby hardy perennials, do very well in the ordinary soil of the garden, and multiply by parting the roots or by striking the young shoots. The raising from seed is very simple. The

seed has to be sown in March in wide-mouthed pots; the seedlings pricked out early, a few in a pot, to grow into strength, and planted out in May if they are hardy or half-hardy, or potted if they are tender. Even the tender ones may be planted out so that they are potted up early in September, and put into frames or greenhouses, or any other contrivance, to prevent the frost from injuring them. The stove varieties are not worth notice, and the others may all safely be treated like Geraniums, Verbenas, and other plants for bedding out. *S. patens* is a fleshy-rooted plant, requiring to be kept dry in winter like a Dahlia root. In dry soils, deeply planted; it lives, however, in the open borders.

SANDERSONIA. [Melanthacæ.] A beautiful greenhouse evergreen perennial, with tuberous roots. Sandy loam and peat. Division or seeds. *S. aurantiaca*, flowers brilliant orange.

SANDWORT. See **ARENARIA.**

SANGUISORBA. **GREAT BURNET.** [Rosacæ.] Hardy perennials of rather coarse habit, but with elegant foliage. Common soil. Division.

SANTOLINA. **LAVENDER COTTON.** [Compositæ.] Hardy evergreen shrubs of neat compact habit. Common soil. Cuttings.

SANVITALIA. [Compositæ.] A procumbent half-hardy annual, requiring the ordinary treatment of half-hardy annuals. Sown in the border or in beds about the beginning of April, it will bloom about July. It is a suitable plant for the edges of beds. *S. procumbens*, flowers yellow.

SAPONARIA. **SOAPWORT.** [Caryophyllacæ.] Showy hardy plants, consisting of annuals and perennials. Among the latter is *S. officinalis flore-pleno*, a vigorous-growing subject of the easiest culture, which, as it propagates by fragments of its roots, is with difficulty extirpated where it has been once introduced, but does not spread very rapidly of itself. Another pretty species, forming indeed a beautiful object on rockwork during summer, but apt to suffer from damp in winter, and therefore requiring to be preserved at that season in a dry frame, is the *S. ocymoides*, which spreads over the surface of the ground in patches of some size, covered with innumerable rose-coloured stars through the principal part of the summer.

season. This kind is best increased by seeds when they are to be procured: these should be sown in May or June, and the young plants potted singly, using a compost of sandy loam, and keeping them sheltered from much wet and damp in cool frames through the first winter, when they may be planted out. When seeds are not to be had, cuttings must be planted in June or July in sandy soil under hand-lights, and these young plants wintered as before. A store of young plants should be so preserved annually. For a dwarf bed in a flower garden this species is well suited, on account of the mass in which its blossoms are produced: when so planted the surface should be covered with stones, over which the branches of the *Saponaria* delight to spread. *S. Calabrica* is a beautiful annual, of very much the same character in other respects.

SARRACENIA SIDE-SADDLE FLOWER. [Sarraceniaceæ.] Half-hardy herbaceous perennials. Sphagnum moss and fibry peat. They require a frame at all seasons—in winter as a protection against frost, in summer to keep them moist. Division. *S. Drummondii*, *S. flava*, *S. minor*, *S. purpurea*, *S. rubra*, and *S. variolaris* are all interesting plants, remarkable for the pitcher-like form of the leaves.

SATYRIUM. [Orchidaceæ.] Greenhouse tuberous-rooted perennials, requiring the treatment of Orchis. Soil, peat and fibry loam well drained. All the species are interesting.

SAXIFRAGA. **SAXIFRAGE**. [Saxifragaceæ.] Hardy perennials of close-tufted growth, mostly of small stature and of simple beauty. All the species are admirably suited for rockwork, thriving when planted on raised banks among rough stones, which they soon cover with their matted branches. One species, *S. umbrosa*, familiarly called London Pride, is one of the most valuable of plants for town gardens; in fact, it thrives anywhere, as well in the midst of smoke and shade as in the pure air: this grows a foot or more high, and has pink flowers prettily spotted, which are produced about May. They flourish in any kind of light soil, and increase to any extent by division. The London Pride is sometimes planted as an edging to flower-borders, and looks very pretty, but requires to be frequently replanted.

SCABIOSA. SCABIOUS. [Dipsacæ.] Hardy herbaceous perennials. Common soil. Division.

SCHÆRIA. [Gesneraceæ.] Beautiful Achimenes-like cool stove tuberous perennials. Light rich soil. Division. *S. Mexicana*, flowers violet purple.

SCHIVERECKIA. [Cruciferae.] Hardy perennial rock plants. Common soil. Division.

SCHIZÆA. [Osmundaceæ.] A genus of curious ferns. Peat soil. Division. The only one grown is *S. pusilla*.

SCHIZANTHUS. [Scrophulariaceæ.] Hardy annuals and greenhouse biennials. The plant is of branching elegant habit, and well covered with bloom; the flowers of an odd shape, with wings and lips of different colours. These latter not only run into one another, but every year give new varieties, that would deservedly be kept distinct were they perennials instead of annuals; but they are not constant from seed. No matter; they are a very pretty tribe of plants, and for pot culture, as well as the borders, are worthy of all gardens. Sown in the open borders, they bloom the more dwarf in proportion as the soil is poor; but the best way to raise them is on a hotbed in March; prick them out in pots, a few in a pot, in April; and in May select as many as required for pot blooming, and pot them singly into five-inch pots. Turn the rest out, with the ball of earth whole, to form patches in the borders. In June the potted ones will bear shifting to eight-inch pots, and in these they will flower beautifully. Meanwhile those in the borders will make a great show, and from the variety of colours, and the combinations of colour they generally present, the patches will look far better than they would if the flowers were all of a colour. Soil for potting, two-thirds mellow turfy loam, one-third turfy peat, with sand if necessary. The greenhouse biennial section is only suitable for pot culture, and differs in requiring to be sown in July or August, and kept through the winter in small pots, on a dry airy greenhouse shelf. They bloom very late if sown in spring.

SCHIZONOTIS. [Rosaceæ.] A small set of hardy shrubs, separated from *Spiræa*, and differing in having pinnate leaves. *S. tomentosus* (*Spiræa Lindleyana*) is a very desirable hardy shrub, requiring the same mode of manage-

ment as the shrubby species of *Spiræa*, from which this genus has been separated.

SCHIZOPETALON. [Cruciferae.] *S. Walkeri* is a hardy annual, more curious than beautiful, but withal worth a place in any garden, not only for the singularity of its appearance, but also for the fragrance which it evolves towards evening. It is one of the cruciferous order, the flowers of which have four petals; but in this case these parts are curiously fringed: they are white on the face, dull brown on the back. It should be sown in April in moderately light soil, and will flower about July, successional sowings blooming on till September. A few plants grown with some care in pots, and kept in a frame near the light, with plenty of air, are interesting subjects for the greenhouse when in blossom, but they are apt to get drawn under confinement.

SCHÆNIA. [Compositæ.] A lovely greenhouse annual. Light rich soil. Seeds. *S. oppositifolia*, flowers rose colour.

SCILLA. **SQUILL.** [Liliaceæ.] A genus of bulbs, for the most part hardy, and ranking among the prettiest ornaments of the early spring. They are far too much neglected in gardens, though of the easiest culture, and very gay appearance at a season when flowers are scarce. They grow very well in any moderately good garden soil, but have rather a preference for soil containing a considerable portion of peat earth, or a free light loam: this is especially the case with several of the smaller kinds. They multiply rapidly by means of offsets, and their culture is very simple; for they merely require planting in the autumn, the bulbs being placed from two to four inches under ground, according to their size, and they may then remain year after year, the patches of bulbs increasing in size, until it is required to form new plantations. Except for this purpose, or for the sake of increase, the less they are disturbed the better. There are something like three dozen species recorded as being in cultivation, all of which are worth planting in a garden. All beautiful in their way.

SCOLOPENDRIUM. **HART'S-TONGUE FERN.** [Polypodiaceæ.] Beautiful hardy evergreen ferns. Soil, loam and peat Division or spores. The curious varieties into which.

the common Hart's-tongue Fern, *S. vulgare*, sports is very remarkable.

SCUTELLARIA. SCULL-CAP. [Scrophulariaceæ.] A rather numerous family of dwarf herbaceous perennials, some of which are very ornamental. They are mostly hardy, showy, and worth growing in the mixed flower-borders, often requiring a dryish situation. They are not particular as to soil, and are readily increased by division, or, where the roots are coarse and indivisible, by planting as cuttings the young shoots produced from the crowns of the roots in spring. There is another set requiring greenhouse protection, at least in winter. These are increased by cuttings planted in sandy soil, and placed in a mild hotbed, and the plants should be potted into rich soil of loam and leaf-mould if grown in pots; but they may be planted out in a warm situation in the flower garden by the beginning of June, to come into flower about August.

SCYPHANTHUS. [Loasaceæ.] A handsome twining plant, related to Loasa, and best treated as an annual. It may be grown in pots or trellises, or on the rafters of the greenhouse, or may be planted out for the summer in warm situations where the soil is light and dryish. In pots it should be grown in a sandy mixture of loam and leaf-mould. The seeds should be sown in March in a mild hotbed, and nursed on till they are able to bear the temperature of the greenhouse, after which they may be planted out. They may also be sown in May in the borders.

SEA LAVENDER. See **STATICE.**

SEDUM. STONECROP. [Crassulaceæ.] A large family of succulents, comprising a great many kinds which are hardy herbs. They are well adapted for covering rockwork, or for pot culture along with alpiners. They are of the easiest culture, growing in almost any soil not retentive of moisture, but preferring that which is sandy. When established on rockwork they grow almost without soil. A very handsome half-hardy kind, somewhat shrubby-habited, is *S. Sieboldii*, one of the prettiest of the species, having very glaucous leaves, and large heads of pink flowers: it forms a large tuft when grown in a large pot, and should have a light open soil. Increased by division.

SELAGO. [Verbenaceæ.] Pretty soft-wooded greenhouse shrubs of easy culture, growing freely from cuttings planted in sand, and placed in a hotbed, and thriving in a light open compost of turfy peat and loam. The best are *S. distans*, pale lilac, and *S. Gillii*, rose, all summer.

SEMPERVIVUM. **HOUSELEEK.** [Crassulaceæ.] A genus of succulents, related to *Sedum*, comprising many species of shrubby habit, requiring a greenhouse, and some few hardy and frame perennials. The greenhouse shrubby sorts are distinct, and worth growing in a collection of succulents: they differ in the form and arrangement of their leaves, and in their habit of growth. Of *S. arboreum* there is a variety which has the leaves tinged constantly with dark purple. *S. arboreum* and *S. Youngianum* belong to a small group to which the name *Æonium* is sometimes applied. These kinds multiply from cuttings of the branches, or by the leaves, dried a little before planting. The plants should be grown in sandy loam, and require to be kept in the greenhouse, sheltered from frost. The hardy herbaceous kinds grow in ordinary garden soil, flourishing most where the situation is rather dry than otherwise. Increased by division.

SENECIO. **GROUNDSEL.** [Compositæ.] An extensive genus of composite plants, of which the most popular are the *Cinerarias*. The hardy herbaceous kinds are of little importance. *S. elegans* is an annual, requiring to be sown in the open border in the month of April, and again in June for a succession. The double-flowered varieties, which are very handsome, may be multiplied by cuttings, and treated as perennial sub-shrubs. The cuttings are struck in July or August, and removed at once into small pots: they are kept in cold frames until there is no danger from frost, when it is customary to remove them to the shelves near the glass in the greenhouse. If for blooming in pots they are shifted on like *Cinerarias*; but if for planting out in the flower garden, where they make admirable beds, they may stand in the small pots till March, and then be removed into pots two sizes larger, in which they remain until they are planted out in the beginning of June, by which time they will be in flower. The young plants should be freely topped during autumn and winter and the early spring, to make them

bushy. The double white and the double purple are distinct and very desirable kinds, and we remember to have seen, many years ago, a still handsomer kind, with full double light purple flowers, and the foliage beautifully variegated with white and purple. Semi-double forms are not uncommon among seedling plants, but it is the full double ones only that should be grown.

SENECIO, SP. VAR. CINERARIA.—The Cinerarias are a race of very showy greenhouse plants, mostly of herbaceous habit, and growing from one to two feet high. They have originated from some species of Senecio, apparently such as *cruentus*, *populifolius*, *L'Heritieri*, *tussilaginis*, &c. Formerly known only as common-looking blue or purple star-flowers, about the size of a common Daisy, they are rapidly becoming one of the most favourite of florists' flowers. There is no end of colours and shades—purples, lilacs, blues, bronzes, and variegations; some like shot-silks, others like gems. They may be had in bloom for a long period in spring. Loam, dung, and peat earth in even proportions answer well for soil, and a cold frame and glass that will merely keep out the frost are all the protection they need. The seed may be sown in spring, the seedlings pricked out in July, and potted off for winter quarters by September: this is for new varieties. To multiply old ones the side-shoots or offsets must be taken off when the bloom declines, and potted in small-sized pots, or the very small plants may be put five or six round the edge of a pot. As these advance they must have more room. The principal management in winter is to keep them well watered, but also well drained and cool. If seed is not wanted the bloom-stalks ought to be cut down as soon as they begin to decline, for it weakens the plants to allow the seeds to ripen, or even swell. Seedlings of these plants do not resemble the parents from which the seeds have been obtained; therefore any favourite or handsome rarities must be perpetuated by division. The closer the petals are at the ends the better the flower, because it should represent a perfect circle.

SHADDOCK. See CITRUS.

SHEEP'S SCABIOUS. See JASIONE.

SHIELD FERN. See ASPIDIUM.

SIDA. [Malvaceæ.] Half-hardy perennials of showy character, which have been sometimes called *Nuttallia*. Peat. Division or seeds. They require to be protected against damp.

SIDE-SADDLE FLOWER. See **SARRACENIA**.

SIEVERSIA. [Rosaceæ.] Hardy perennials, with the habit and structure of *Geum*, and requiring similar treatment. They are mostly dwarf plants, and grow in light garden soil, increase being effected by dividing the roots. Pretty plants for the border or for rockwork.

SILENE. CATCHFLY. [Caryophyllaceæ.] A genus of annual and perennial plants, bearing trusses of pink, red, pale rose, and lilac blossoms, and lasting some weeks in bloom, pretty enough as border flowers, but put greatly in the background by more showy and popular subjects. The annuals may be sown in the open border where they are to remain: if they are sown too thickly they will draw up, therefore they should be thinned. The perennial sorts grow in common soil, and are propagated by division.

SILVER FIR. See **PICEA**.

SINNINGIA. [Gesneraceæ.] Stove perennials, allied to *Gloxinia*, and requiring similar management.

SIPHOCAMPYLOS. [Lobeliaceæ.] A genus of showy plants, so closely related to *Lobelia* that various species have been ranked in both genera. They are herbaceous plants, with a half-shrubby mode of growth, throwing up from the root long stems in one season, which mostly branch and blossom during the next, or bloom along their upper portion towards the close of the season in which they are produced. They require loam, peat, and sand for a compost, as in the shrubby *Lobelias*, and are in the same way increased by cuttings. The following are stove perennials:—*S. bicolor*, flowers scarlet and yellow; *S. coccineus*, flowers scarlet; *S. longipedunculatus*, flowers red; *S. manettiaeflorus*, flowers scarlet and yellow.

SISYRINCHIUM. [Iridaceæ.] Pretty half-hardy perennials of the *Iris* family. They prefer a bed of peat soil, and propagate by division. The half-hardy species should be potted in the same kind of soil, and should not be overwatered in winter.

SITOLBIUM. [Polypodiaceæ.] Ferns, of which some are hardy or greenhouse species. Peat and loam. Division *S. davallioides* and *S. punctilobum* are grown.

SCIMMIA. [Aurantiaceæ.] A fine hardy evergreen shrub, remarkable for its fragrant flowers and coral berries. Good loamy soil. Cuttings, or layers, or seeds. *S. Japonica*, flowers white.

SCULL-CAP. See SCUTELLARIA.

SLIPPERWORT See CALCEOLARIA.

SNAPDRAGON. See ANTIRRHINUM.

SNOWDROP. See GALANTHUS.

SNOWFLAKE. See LEUCOJUM.

SNOWY MESPILUS. See AMELANCHIER BOTRYAPIUM.

SOAPWORT. See SAPONARIA.

SOLANUM. NIGHTSHADE. [Solanaceæ.] This very extensive genus comprises plants greatly varied in their habits, and includes stove, greenhouse, and hardy kinds, annuals, perennials, and shrubs. *S. pseudo-capsicum* is grown for its red cherry-like berries in winter; but the best of all the Solanums for a limited garden is, perhaps, the *S. crispum*, a kind nearly or quite hardy, succeeding well trained against a wall, and bearing a great profusion of lilac or pale purple flowers. These kinds all grow well in a good loamy compost, and are propagated by cuttings. *S. Amazonicum* is a fine stove shrub, with prickly leaves and purple flowers: it is a free grower in loamy soil, and requires plenty of pot room, and the temperature of a stove. One of the most singular plants of this genus is the Egg plant.

EGG PLANT (*Solanum ovigerum*).—This is the type of a little group which are chiefly cultivated for the extraordinary likeness between their fruit and the egg of the domestic fowl. The white and purple are both cultivated to a considerable extent as market plants, and the former is well worth the trouble. The seeds should be sown in heat in March in wide-mouthed pots, and when large enough planted singly in three-inch pots in loam, dung, and peat, equal quantities, and placed in a hotbed. As soon as the pots fill with roots change them to the next size, and continue them in the hotbed: the nearer they are kept to the glass the better, so that they do not touch. Water them rather freely as they begin

to flower, for the fruit takes up a good deal of nourishment as they swell. When the fruit sets they may be removed to the greenhouse near the glass, otherwise they will draw. If the pots fill with the roots again give them another change; but those intended for market are merely watered with manure water, which excites them enough for that purpose. The manure water should be made with cowdung thoroughly decomposed—a good spadeful in eighteen gallons of water, stirred round two or three days before using, and diluted every time it is used: a shift, however, is far better for the plant, and therefore is recommended when we grow it for home show instead of market. The ripened fruit contains the seed for the next year.

SOLDANELLA. [Primulacæ.] A beautiful little group of minute perennial plants, hardy, and among the most interesting of the alpine families. They increase with facility by the process of dividing the roots, and should be kept in pots—a store at least—protected from wet, and slightly from frost during the winter season. The pots must be well drained, for they will not bear stagnant moisture with impunity. When grown vigorously in pots, and flowered in good-sized tufts, they are very ornamental objects. The compost for them should be sandy loam and peat, made very porous. The few species are all beautiful, and no one should be omitted if all can be obtained. The following are perhaps the best:—*S. alpina*, *S. minima*, and *S. montana*, flower blue. *S. pusilla*, flowers violet.

SOLIDAGO. GOLDEN ROD. [Compositæ.] Hardy herbaceous perennials, all producing yellow Daisy-shaped blossoms, small individually, but for the most part produced so abundantly as to have a very conspicuous appearance: they mostly bloom in autumn, and some very late in the season. They are increased by dividing the roots, separating some of the young suckers, which are annually produced in abundance at the base of the plant. This may be done in autumn or spring, and the divisions planted in ordinary garden soil. The patches should be replanted every three or four years, or they are liable to spread, and become too large. The most vigorous young plants are always to be obtained from the outsides of the old patches. But few of the numerous

kinds are required in one garden, as there is considerable sameness in their general aspect.

SOLLYA. [Pittosporaceæ.] Pretty evergreen greenhouse climbing shrubs, bearing small bunches of neat blue flowers. They are vigorous growers, extending with a woody stem some ten or twelve feet; but the parts being small, they may readily be trained on a cylinder trellis so as to form a bush-like outline, and to admit of their being cultivated in pots. For front pillars in greenhouses and conservatories, however, they are well suited. They should have a compost of equal parts loam and peat, and increase either by cuttings or seeds with facility. *S. Drummondii*, deep blue. *S. heterophylla*, flowers pale blue. *S. linearis*, flowers deep blue

SOLOMON'S SEAL. See **POLYGONATUM.**

SOUTHERNWOOD. See **ARTEMISIA.**

SOUTH SEA MYRTLE. See **LEPTOSPERMUM.**

SOWBREAD. See **CYCLAMEN.**

SPARAXIS. [Iridaceæ.] A family of showy iridaceous bulbs, requiring a frame or greenhouse; that is to say, protection from frost and damp, as with *Ixia*, to which genus this is closely allied. All showy little plants.

SPECULARIA. [Campanulaceæ.] A small family of hardy annuals, formerly comprised under *Campanula*. The common *S. speculum*, with purplish-lilac flowers, varies to white and rose-coloured, and is distinct and pretty. The plants form a small spreading mass of about nine inches high, and may be had in bloom for the whole summer by successive sowing from March to June. The seeds may be sown—very thinly, for they are very small—in the open border, and should be very lightly covered. Thin out the plants well as soon as they are large enough to pick out those not required: six or eight plants are enough to form a patch.

SPEEDWELL. See **VERONICA.**

SPHENOGYNE. [Compositæ.] A genus of composite plants, consisting of hardy annuals and greenhouse shrubs. The most useful is *S. speciosa*, a very pretty half-hardy annual, which may be had in succession through the summer by successive sowings. The first may be sown in a gentle hotbed in March; these may be followed by others in the open ground in April, May, and June. The plants grow well

in rich light garden soil, and in favourable seasons are very ornamental.

SPIDERWORT. See TRADESCANTIA.

SPIGELIA. WORM GRASS. [Loganiaceæ.] *S. Marylandica* is a pretty hardy perennial herb, growing a foot high, and bearing tubular flowers, which are scarlet, tipped with green, and bear no inconsiderable resemblance to those of the *Correa speciosa*. The plant prefers a cool and somewhat shady situation, where the soil is of a somewhat peaty character—say half peat and half maiden loam. When in a thriving condition it is a very pretty plant. It is propagated by division of the root.

SPINDLE TREE. See EUONYMUS.

SPIRÆA. [Rosaceæ.] A very interesting tribe of hardy plants, some of them herbaceous perennials, others deciduous shrubs, handsome when in flower; nearly all bear white flowers in pyramidal spikes. The herbaceous kinds are beautiful in pots or in the borders, and the shrubs are pretty in plantations and dressed grounds. The former are propagated by parting the plants and by cuttings, and the latter by layers and by cuttings of the young wood. The herbaceous kinds spread a good deal, and may be divided easily, but it should be done early in autumn or in spring; and in the case of the rarer and more delicate kinds the divided parts should be potted until they have established themselves, and may then be planted in the open border; the others may be parted and planted out at once. The shrubs are very useful in clumps, and can be trained, or rather pruned, to any form. To propagate these the branches should be layered in autumn, a slit being cut under a joint, and the branch pegged down below the surface; the next autumn the layers may be cut off, and planted in nursery-beds about a foot apart to grow into strength; they may be pruned into form while there, and when they grow too large for their space every other plant may be taken up and planted in other beds, eighteen inches or two feet apart, or be placed at once where they are to remain. There are many, of which those enumerated are some of the best and most distinct. *S. ariaefolia*, flowers whitish. *S. bella*, rose. *S. callosa*, deep rose. *S. Douglasii*, rose. *S. opulifolia*, white. *S. palmata*, red. *S. prunifolia*, white. The

double-flowered variety, *flore-pleno*, is a beautiful shrub, with double white button-like blossoms. *S. grandiflora* is the best.

SPIRONEMA. [Commelinaceæ.] Greenhouse herbaceous plants, with fragrant flowers. Sandy loam and peat. Division and seeds.

SPLEENWORT. See **ASPLENIUM.**

SPREKELIA. [Amaryllidaceæ.] Beautiful stove or greenhouse bulbs. *S. formosissima*, the old *Amaryllis formosissima*, is imported annually in large quantities. This species should be potted directly the bulbs come over in loam, rotted dung, and coarse sand, equal parts, burying half the bulb in the soil; they should be placed in a common hotbed such as cucumbers are grown in, and will not be long before they commence growing and blooming, producing flowers of the richest crimson, exposing the entire inner surface of the petals: these last some time in perfection if removed to the conservatory or the dwelling-house. They may be grown as greenhouse bulbs, keeping them in the house on a very light shelf while the leaves are growing, and watering with weak manure water while in full vigour; then ripening off, and keeping the bulbs quite dry in winter until they show signs of flowering. Increased by offsets.

SPRENGELIA. [Epacridaceæ.] Greenhouse evergreen shrubs. Sandy, fibry peat. Cuttings in sand under a bell-glass. *S. incarnata*, flowers flesh colour.

SPRUCE FIR. See **ABIES.**

SPURGE. See **EUPHORBIA.**

SPURGE LAUREL. See **DAPHNE**

SQUILL. See **SCILLA.**

STAPELIA. [Asclepiadaceæ.] Succulent plants, requiring stove heat at certain seasons to bring them to perfection: they have four-angled fleshy stems, and star-shaped flowers of curious appearance. Including the allied genera, *Orbea*, *Tromotriche*, *Tridentia*, *Podanthes*, *Obesia*, *Davallia*, *Gonostemon*, and *Caruncularia*, all once called *Stapelia*, the genus is a very large one. Any of the species are worth growing; but we should not omit to select *S. grandiflora*, which has large dark purple flowers early in winter; nor *S. bufonia*, which has yellow flowers, marked with black, in

autumn. The flowers of most of these have the singular property of smelling like carrion, which smell attracts the flies, so that the blooms often become eaten by maggots. They are grown as curiosities, their flowers being very extraordinary, almost artificial-like. They grow best in a mixture of sandy loam and brick rubbish or broken pots, with a very liberal drainage. They should at all times be sparingly watered, and in winter time they hardly require any. They require stove culture, or a warm close greenhouse, while growing in the early part of summer, and afterwards may be ripened and kept in a greenhouse ; but, as they bloom chiefly in autumn, warmth is desirable to enable them to expand their flowers. They are increased readily by cuttings, which, as they are very succulent, should be allowed to dry a week after they are taken off, when they may at once be put singly into pots, for they will strike in their own pots without any bell-glass or other covering. There are upwards of a hundred kinds.

STAR OF BETHLEHEM. See ORNITHOGALUM.

STARWORT. See ASTER.

STATICE. SEA LAVENDER. [Plumbaginaceæ.] Fine hardy or half-hardy perennials, growing vigorously in ordinary flower-borders of good light loamy soil, where they throw up their widely-branching flower-stems, with hundreds of small blooms covering them, and forming a complete feather of diminutive blossoms, for the most part white or blue. These perennials only require planting out, and, with watering in dry weather, they will increase in size and flower season after season, until they may be taken up and parted to multiply them, when they set to work and soon spread again, and become conspicuous. When the roots are taken up they are divided so as to give at least one good heart to each piece of root, the roots being rather coarse. All the hardy kinds want the same treatment. The half-hardy kinds may be kept with the protection of a frame, and are best grown in pots ; or at least a store of plants should be kept in pots if those in the borders are annually abandoned. The genus also contains a few warm greenhouse evergreens which are very ornamental, and should be grown in a compost of equal parts of light turfy loam and turfy peat. The drainage must be very good,

composed of broken potsherds, occupying one-fourth the height of the pot, and the plants should be put into pots no larger than may be necessary for the roots. They should be grown near the glass, and changed from one pot to another as the roots get crowded. They are propagated by cuttings, which strike freely under a bell-glass with a little bottom heat. The plants must also be kept from frost, and should have a warm greenhouse. Some *Statice*s are now called *Armeria*. The following are worth their places:—*S. arborea*, *S. frutescens*, *S. imbricata*, *S. macrophylla*, *S. mucronata*, and *S. puberula*. All the *Statice*s are worth growing. *S. eximia* and *S. bicolor* are perfectly hardy.

STAUNTONIA. See HOLBOLLIA.

STENOCARPUS. [Proteaceæ.] Fine greenhouse evergreen shrubs. Fibry loam. Cuttings. *S. Cunninghami* is better known as *Agnostus sinuata*.

STENOCHILUS. [Myoporaceæ.] Greenhouse evergreen shrubs. Fibry peat, and a fourth part light loam. Cuttings in sand under a bell-glass. *S. maculatus*, flowers red.

STENOMESSON. [Amaryllidaceæ.] Pretty dwarf bulbous plants, requiring greenhouse protection. Like other bulbs of this class, they require to be kept dry when at rest in winter, but should have an abundant supply of water while growing. A sandy mixture of loam and peat suits them best. Offsets.

STERNBERGIA. [Amaryllidaceæ.] Hardy bulbs. Sandy loam. Offsets.

STIPA. FEATHER GRASS. [Gramineæ.] Ornamental hardy perennial. Common soil. Division.

STOCK. See MATHIOLA.

STONECROP. See SEDUM.

STORK'S BILL. See PELARGONIUM.

STRANVESIA. [Pomaceæ.] A fine half-hardy evergreen shrub. Dryish loamy soil. Increased by grafting on the Whitethorn. A fine plant for walls. *S. glaucescens*, flowers white, in June.

STRAWBERRY TREE. See ARBUTUS.

STRELITZIA. [Musaceæ.] A genus of extraordinary-looking stove or greenhouse plants, familiar to us in all stove collections, as having a flower almost like the head of some

gay bird, formed of orange and blue, each individual blossom keeping in perfection a considerable time, and being succeeded by others as it decays. Loam and turfy peat form the best compost for it. It may be grown on to a large specimen, filling a large pot or tub, and consisting of so many hearts or crowns that some one or other may be expected to be always in flower. There is required, however, for all plants a period of rest, and then the *Strelitzia* should be put in the coolest part of the stove, and have but little water. Whenever the largest-sized pot in which it can be accommodated is filled so close with roots as to starve the plant, it must be turned out, and some of the offsets removed, the mould being shaken out enough to do this conveniently, and the strongest pieces potted again, either singly as small plants, or several together in a pot as large as may be required. If a large mass is still desired, no more need be taken away than enough to afford space to replant it in the same pot or tub. The offsets so parted must undergo the same treatment, being changed from pot to pot till they arrive at the same perfection. When changed from large pots to tubs the plants get unwieldy, and are only adapted for certain situations, so that in small gardens it is much better to part them. They will live in a greenhouse from which frost is excluded. The best is *S. reginæ*, stove perennial, flowers orange and purple.

STREPTOCARPUS. [Gesneraceæ.] Pretty greenhouse herbaceous perennials. Light rich loamy compost. Seeds in spring in a warm frame. *S. Rexii*, flowers blue lilac.

STRUMARIA. [Amaryllidaceæ.] Greenhouse bulbs. Rich loam. Offsets. They require the treatment of *Nerine* and *Amaryllis*.

STRUTHIOPTERIS. [Polypodiaceæ.] Beautiful hardy ferns. Peat soil. Division. The best is *S. Germanica*.

STYLIDIUM. **STYLEWORT.** [Stylidiaceæ.] Very distinct and pretty-looking plants, for the most part greenhouse perennials. They like a soil of rather sandy peat earth, and, being of small size, do not require very large pots. Seeds produce the best young plants: sow as soon as ripe in sandy peat, and keep in the greenhouse. Young shoots taken off, and planted in sand as cuttings, also form healthy young plants.

STYPHELIA. [Epacridaceæ.] Evergreen greenhouse shrubs, with the habit of Epacris. *S. tubiflora*, a handsome shrub in its season, under good management, literally—covered, we were going to say, but inasmuch as the blooms bend downwards, and are under the branches rather than above, we must say the flowers are as numerous as leaves. One great and excellent quality is that they last as long as two months in perfection, and they are of a rich scarlet crimson, and an inch or more in length. The plant requires much the treatment of Epacris; that is, to have a compost of three parts fibry peat to one of sandy loam; to be potted into small pots, and changed from one pot to another of the next larger size, as fast as these fill with roots; to be kept in the greenhouse, and very carefully watered, for it is as difficult to manage in this particular as an Erica, which wants constant watching and enough watering, but no more. Small cuttings an inch and a half long will strike well in sand on the top of the compost under a bell-glass. It is one of the prettiest of greenhouse plants, and there is no excuse for any lover of plants who has it not in his collection.

SUMACH. See RHUS.

SUNDEW. See DROSERA.

SUNFLOWER. See HELIANTHUS.

SUN ROSE. See HELIANTHEMUM.

SUTHERLANDIA. [Leguminosæ, § Papilionaceæ.] *S. frutescens* is a pretty half-hardy sub-shrubby plant, easily kept in a cool greenhouse in winter, and thriving best when planted out on a warm sheltered border for the summer. The compost may be loam, peat, and leaf-mould in equal proportions. If kept in a pot it requires to be frequently topped while young to get it sufficiently bushy in its growth. Seedlings make the best plants: the seeds may be sown in May or June. Cuttings root in sandy soil in a warm frame.

SWAINSONIA. [Leguminosæ, § Papilionaceæ.] Pretty greenhouse sub-shrubs. Best raised from seeds, the plants requiring to be frequently topped while young to keep them bushy. Cuttings will also root in sandy soil in a frame where there is a slight bottom heat. They require a greenhouse temperature, and should be potted into a light open compost

of loam, leaf-mould, and peat in equal parts. *S. galegifolia*, *S. Greyana*, and *S. Osbornii* are worth growing.

SWALLOW-WORT See ASCLEPIAS.

SWAN DAISY. See BRACHYCOME.

SWEET ALYSSUM. See KONIGA.

SWEET BRIER. See ROSA RUBIGINOSA.

SWEET PEA. See LATHYRUS.

SWEET SCABIOUS. See ASTEROCEPHALUS.

SWEET SULTAN. See CENTAUREA MOSCHATA.

SWEETWILLIAM. See DIANTHUS BARBATUS.

SYMPHIANDRA. [Campanulaceæ.] Hardy perennial. Dryish sandy loam. Seeds or cuttings.

SYMPHORICARPUS. [Caprifoliaceæ.] Pretty deciduous shrubs, remarkable for the white berries which succeed their flowers and remain through the winter. Common soil. Suckers.

SYRINGA. LILAC. [Oleaceæ.] This family comprises the Lilac and its varieties. Well-known and favourite deciduous shrubs, of which there are several very distinct kinds. The common Lilac, *S. vulgaris*, gives white, red, and purple varieties; the Persian Lilac, *S. Persica*, has a white as well as a cut-leaved variety. There are some others, as *S. Josikæa* and the Chinese *S. Rothomagensis*, which is perhaps the best of all: they chiefly differ in the size of the foliage and flower. All are hardy, and well deserving a place in all shrubberies. They are propagated by layers and suckers, the latter of which abound so much as to become troublesome unless regularly removed, with the bit of root to which they are attached. All these species grow naturally in the form of bushy shrubs, but they are in every respect more desirable as standards. To make them grow as standards the buds of the suckers with single stems are all rubbed off, but two or three placed at and near the top; and, as the top advances in height, the under branches are cut clean away, so that at no one time shall there be more than the few top branches. When the single stem, with its top three pairs of branches, has reached the desired height, say six feet or less, the branches are allowed to remain on and grow; but the top is removed to prevent the tree growing higher, and the ends of the branches are also removed to encourage lateral shoots, which soon form a hand-

some head. Suckers must be destroyed the instant they appear, and the stem ought also to be clean to the bottom; therefore rub off all buds that push out anywhere about the stem. In this form the Lilac tree may then be planted among evergreen shrubs, which will completely hide the stem, while it takes up scarcely any room. There is no art in growing the bushes, for the suckers have only to be cut down to about three or four eyes from the ground at the first planting, and the season's growth will form a bush.

SYRINGA. See PHILADELPHUS.

TABERNÆMONTANA. [Apocynaceæ.] Evergreen stove shrubs, some of which, the popular ones, are much like the Gardenia, or Cape Jasmine: the scent is the same, and the foliage alike. Cuttings taken from the ends of unblooming shoots will strike in sand on sandy peat earth, and covered with a bell-glass. A dung-bed is preferable to any other place while the plants are young. When they have struck they may go through a course of regular potting, beginning with small ones, three inches over, and changing from time to time as they advance in size. While they are young any bloom-buds that appear may be cut out, because flowering always arrests the growth of a plant; but if the plants are in a private collection, then it may be more desirable they should bloom small than make a more rapid growth. When they have made their growth for the season, and begin to rest, they must be put in a cool part of the hothouse, and have no water except just to keep them from dying. As soon as the season of growth arrives they want moist heat, and the dung-bed is the best if room can be there made for them. The popular kind is *T. coronaria*, of which there is also a double variety, both bearing white flowers about July.

TACSONIA. [Passifloraceæ.] Beautiful evergreen climbing plants, so nearly allied to Passion-flowers that many persons have wondered at their separation. *T. pinnatistipula*, with all the habit of the Passion-flower, has beautiful rose-coloured flowers. It requires greenhouse culture, and grows

in sandy soil. Loam and peat in equal quantities form a proper compost for it. The cuttings, when rooted, should be potted off, and only changed from small to larger pots when the roots actually fill them, because it is desirable to check as much as possible the growth of store plants. For pot culture they are mostly too large, as they do not flower freely without having previously made extensive growth. When planted in the conservatory border they will half cover the place with rosy blossoms. They are admirable conservatory climbers. *T. manicata*, crimson, *T. mollissima*, rose; and *T. pinnatistipula*, pink, are the chief varieties.

TAGETES. [Compositæ.] This genus contains the French and African Marigolds, both well-known and showy annual flowers. These plants have long been favourites in gardens, and both have greatly improved under careful cultivation, so that the fine double varieties of each are really splendid objects. The African is of a rich golden colour, and very large. The French is of a rich brown, dark or light, but variously blotched or edged with bright golden yellow: in a large number of seedlings scarcely two will give flowers alike, and, indeed, on the same plant it is difficult to find two in all respects identical. Both kinds are raised from seed, and to get them early they should be sown in heat about March. When they germinate they must have plenty of air to prevent their becoming drawn up. Plant the French sort out towards the middle of May about three in a patch, because the diversity of colour assists by its contrasts in producing a good effect. This, however, does not apply to the African sort, which may be put out singly, because they are not variegated, and also because they are larger, and one plant makes show enough in a place. When the French Marigold is planted out in a bed it is very gaudy, and the numberless varieties in the mixture of only two colours, brown and yellow, is wonderful, the differences merely consisting in the blotching, edging, and general marking of the flowers. All single and semi-double ones ought to be pulled up and thrown away the instant they can be detected; and if choice ones are prized it is very desirable that this should be carried out through all the borders, as well as in the seed-bed, which every one should have for the purpose of saving seed. Besides those sown in

heat, others should be sown in the open ground to form a succession; for, although the first will keep blooming until the frost cuts them off, younger ones coming in are more compact plants, and the removal of the overgrown ones makes a change in the features of the garden. The German seedsmen affect to sell several varieties of Marigolds, but a pinch of seed from a good double flower will give all of them in one patch. There is another annual kind which should find a place in all gardens, for its neat and elegant foliage, its rich orange flowers, and its compact and profusely-flowering habit; it is the *T. tenuifolia*, sold in seed-shops as *T. signata*. The flowers are small compared even with the French Marigold, and they are single; but in soil not too rich the plants form closely-branched compact bushes, and are literally covered with blossoms, which in the mass have a very charming effect. *T. lucida*, a pretty perennial, is propagated by division, and requires some protection in winter.

TAMARIX. TAMARISK. [Tamaricaceæ.] Hardy shrubs in peat. Common soil. Cuttings. The Tamarisk is one of the best plants for withstanding the influence of the sea breeze.

TAXUS. YEW. [Taxaceæ.] Fine evergreen shrubs or trees. Deep loamy soil. Cuttings in a shady border, or seeds.

TEA TREE. See **THEA**.

TECOMA. [Bignoniaceæ.] A genus of elegant tubular-flowered plants, consisting of both evergreen and deciduous shrubs and climbers. *T. radicans* and its varieties are beautiful hardy deciduous climbers, very ornamental against a wall or a house; they grow well in good rich loam, and are propagated by layers: the plants should be pruned much in the same way as the vine. The greenhouse kinds grow best in a mixture of loam and peat, and propagate freely by cuttings placed in a gentle heat. *T. Capensis*, *T. grandiflora*, flower orange. *T. jasminoides*, flowers white, with rose centre.

TELLIMA. [Saxifragaceæ.] Hardy perennials. Sandy loam and peat. Division.

TELOPEA. WARRATAH. [Proteaceæ.] A splendid greenhouse evergreen shrub, rarely, however, made to blossom. Sandy loam and peat. Cuttings of ripe shoots in sand under a bell-glass.

TEMPLETONIA. [Leguminosæ, § Papilionaceæ.] Greenhouse evergreen shrubs. Fibry peat. Cuttings in sand under a bell-glass. *T. retusa* and *T. glauca* both have crimson flowers in May.

TETRAGONOLOBUS. [Leguminosæ, § Papilionaceæ.] Chiefly hardy annuals. Common soil. Seeds. *T. purpureus*, flowers dark purple.

TETRANEMA. [Scrophulariaceæ.] A pretty herbaceous evergreen stove plant. It should be potted in a compost of loam, peat, and leaf-mould in equal parts; and if kept rather dry and warm during winter, and gently excited in spring, it will grow and blossom in a close greenhouse for a great part of the summer. It ripens seed freely, by which it may be propagated: the seed may be sown as soon as ripe, and kept in a warm greenhouse or pit. *T. Mexicana*, flowers purple.

TETRATHECA. [Tremandraceæ.] Slender and very pretty greenhouse evergreen shrubs, one species of which, *T. verticillata*, is often erroneously called *Tremandra Hugelii*. They are evergreen shrubs from New Holland, and require to be cultivated in the greenhouse. They should have a compost of rather sandy fibry peat, with about a fourth part light loam added. Cuttings root in sand under bell glasses. The young plants must be frequently topped to force them into bushy growth. They are very impatient of overdoses of water, especially in winter, though, like all shrubs grown in peat, drought is equally fatal.

TEUCRIUM. GERMANDER. [Lamiaceæ.] A considerable group of hardy and greenhouse herbaceous plants and dwarf evergreen sub-shrubs. Common dryish sandy soil. Division or cuttings.

THALICTRUM. MEADOW RUE. [Ranunculaceæ.] Hardy herbaceous perennials, worth growing in a mixed border for the sake of their pretty compound foliage, but having rather insignificant blossoms. They grow freely in common garden soil, and are increased by division of the plant.

THEA. TEA TREE. [Ternströmiaceæ.] A genus closely related to *Camellia*, having, like that, large leathery leaves, but not like that producing conspicuous flowers. The plants are interesting in gardens from their commercial associations. *T. viridis* is the principal source of the best teas. *T. bohea*

furnishes an inferior quality. *T. Assamica* is a stronger-growing species, whose quality seems to be as coarse as its appearance. These plants form pretty evergreen shrubs; they are half-hardy, blooming about as large as pear-blossoms; and their treatment is like that of the Camellia. They are propagated by cuttings, struck from the last year's wood, with two joints, one put underground and one above—the one to root, the other to branch; but as these are not wanted in great number in England, being only grown for curiosity, the ends of shoots are taken so as to form a pretty little plant directly it grows. They are also raised from seed by sowing in pans, and placing them in the greenhouse till they come up, when they may be first pricked out three or four in a pot, and then potted one in a pot, which has to be changed to larger ones as they grow.

THERMOPSIS. [Leguminosæ, § Papilionacæ.] *T. fabacea* is a pretty hardy perennial worth cultivating. It should have a light rich soil, and generally produces ripe seeds, by which it is best propagated: the seedlings take a couple of years to grow to a blooming size.

THIBAUDIA. [Vacciniacæ.] Evergreen shrubs, some of great beauty, cultivable in a greenhouse. Fibry peat and loam. Cuttings in sand of half-ripe shoots in heat under a bell-glass will root freely.

THOMASIA. [Byttneriacæ.] Greenhouse hard-wooded evergreen shrubs of a peculiar aspect, easily cultivated, and forming a pretty variety in a mixed collection. They increase by cuttings in sand under bell-glasses, and grow in turfy peat soil, with about a third part of sandy loam added. The plants should be rather closely topped and frequently repotted while young, to encourage growth, and to produce bushiness of habit; but when a foot or so in height they may be allowed to progress more slowly, and will flower abundantly.

THRIFT. See **ARMERIA.**

THUJA. **ARBOR-VITÆ.** [Coniferæ.] These are among the best of evergreen shrubs for the shrubbery, or as specimen plants on lawns. *T. orientalis*, the Chinese Arbor-vitæ, is well known, and is admired for its close cone-shaped outline. *T. occidentalis*, the American Arbor-vitæ, has the same habit,

but is of looser growth. There is another elegant hardy species, called *T. plicata*, not uncommon in gardens; and one much rarer, the *T. pendula*, which has long slender drooping twigs, and is a most singular and very ornamental small tree. The commoner sorts grow well in any moderately favourable situation, preferring a somewhat moist but not marshy situation. They are best raised from seeds sown in April in a frame or covered bed. *T. pendula* should be kept drier, and is increased by grafts or cuttings.

THUNBERGIA. [Acanthaceæ.] Stove evergreen climbers. They thrive best in a mixture of turfy loam, peat, and rotted dung; but the best of them, *T. alata* and its varieties, being very liable to attacks of red spider, are best raised from seeds, and treated like tender annuals, only they require a trellis on which to train their branches. *T. alata aurantiaca* is the best, this having deep orange blossoms, with a black centre. *T. alata alba*, with white flowers and a black centre, is also very pretty, and there are several others. The colour of *T. alata* itself is buff yellow, with a black centre. The varieties all bloom throughout the summer, and at that season are splendid objects in a greenhouse if well managed: they may also be grown out of doors in sheltered places, preferring moist peat soil. This, as well as the other species, strikes freely; and cuttings in sand under a bell-glass with a little bottom-heat are rooted in a short time. Let these be potted off in the smallest-sized pots, and any stray bloom-buds be picked off until the plant has grown so as to acquire some strength. Blooming takes away the strength a good deal, and the plants are better grown quickly than otherwise, which, indeed, appears its natural disposition. As soon as the small roots grow through the hole at the bottom of the pot let them be changed into a size larger, and the end of the main shoot may be taken off to produce lateral branches. When they have been shifted into six-inch pots some kind of trellis should be provided for them, and their tender shoots carefully guided to cover it: all this time they are to be in the stove, and near to the light. Let them frequently have the benefit of syringing the foliage, which is a check to the red spider, and continue to pick off the flower-buds till the plant has nearly covered the trellis, when they may be allowed to open.

The seeds may be sown in March in wide-mouthed pots, and, as soon as the plants are large enough, potted off into the smallest-sized pots, to be treated the same as cuttings.

THYMUS. **THYME.** [Lamiaceæ.] Hardy evergreen perennials and sub-shrubs. Sandy loam. Divisions or cuttings. Many of them are beautiful rock plants.

THYSANOTUS. [Liliaceæ.] Greenhouse herbaceous perennials, with pretty flowers. Sandy loam and peat. Seeds or division. They must not be over-watered during winter.

TIARELLA. [Saxifragaceæ.] Hardy perennials. Common dryish soil. Division.

TIGRIDIA. **TIGER FLOWER.** [Iridaceæ.] One of the most showy and remarkable of flowers, but at the same time one of the most fugitive: the flowers last but a few hours, but there is a good succession of them produced. They are hardy bulbous-rooted plants, with the flowers large, singularly formed, like a cocked hat reversed, and beautifully spotted with a darker colour upon a yellow or deep orange-coloured ground. The two so-called species are very similar in all but having a darker or lighter ground colour. The flowers last but the day they come out if the sun is pretty hot, which it generally is when they flower, in June. They do not grow more than a few inches high, and should be planted in a mass, because there will then be a number of flowers open for some time. When planted singly that is not the case, for there will be days when a plant will have none, and that, too, before it is out of bloom altogether. Plant them in early spring, say March, three inches deep, and take them up in the autumn; or, if they are left out, throw litter over them, for though called hardy they will not stand frost. Increased by offsets.

TILE ROOT. See **GEISSORHIZA.**

TOAD FLAX. See **LINARIA.**

TOBACCO. See **NICOTIANA.**

TODEA. [Osmundaceæ.] Greenhouse ferns. Turfy peat. Division or spores, but not easily propagated. *T. Africana* and *T. pellucida* are the principal.

TORCH THISTLE. See **CEREUS.**

TORENIA. [Scrophulariaceæ.] The most ornamentaf

species of this genus is *T. Asiatica*, a trailing herbaceous-stemmed perennial, bearing through great part of the year a profusion of beautiful porcelain-blue flowers, with dark purple blotches. It is propagated by cuttings, which strike readily in a little heat, and when rooted should be potted into a rich open compost of rough peat, loam, and leaf-mould, equal parts, with a little sand added, and shifted on into larger pots as soon as the roots thicken among the soil. In winter it should have a cool position in a stove, and in summer may be placed in the greenhouse, where it should be kept cool, moist, and somewhat shaded. In some sheltered situations it will succeed out of doors in summer, but not generally.

TORREYA. [Taxaceæ.] Evergreen shrubs. Deep loamy soil. Cuttings or seeds. The chief are *T. myristica* and *T. taxifolia*.

TOUCH-ME-NOT. See IMPATIENS.

TOURNEFORTIA. [Ehretiaceæ.] *T. heliotropioides* is a Heliotrope-like hardy or nearly hardy plant, not very showy, but a very free bloomer, and useful for small beds. It will grow in the open borders, and in all mild winters will not be destroyed; but a plant or two should be kept in a frame through the winter in case of severe weather, which might destroy it. It is increased either by seeds sown in May or by cuttings, and is a low plant, flowering from May to August.

TRADESCANTIA. SPIDERWORT. [Commelinaceæ.] The hardy perennial species of this genus are adapted for the common borders. They are readily increased by division, and only require to be planted in the common soil, and left undisturbed till they get too large, when they must be taken up and divided. The tender species are of less moment, except *T. discolor*, a curious stove species, and *T. iridescens*, a pretty dwarf free-blooming greenhouse herb.

TREE PEONY. See MOUTAN.

TREFOIL. See TRIFOLIUM.

TRICHOMANES. BRISTLE FERN. [Hymenophyllaceæ.] Beautiful ferns, inhabiting the tropics for the most part. Very moist rocky, and therefore well-drained soil, with a constant supply of moisture, and a close moist atmosphere. The species propagate by division. They just

suit closed glass cases. The best are *T. radicans* and *T. reniforme*.

TRICHONEMA. [Iridaceæ.] Hardy or half-hardy Crocus-like bulbs, worth cultivating. Sandy loam. Offsets. They are best grown in pots in frames, or in very sheltered borders.

TRIDENTEA See **STAPELIA**.

TRIFOLIUM. **TREFOIL, or CLOVER.** [Leguminosæ, § Papilionaceæ.] Hardy herbs, many of which are annuals or biennials, and a large number perennials. They are not of much value as garden plants. *T. incarnatum*, with its scarlet flower-heads, is showy; and *T. uniflorum* is a very pretty minute perennial species, deserving a place among alpinists. The annuals may be sown in March in the places where they are to flower. The perennials need only to be planted in ordinary soil, and divided and reduced when the patches have grown too large for the positions they occupy. Common soil.

TRILLIUM. [Melanthaceæ.] Curious small hardy herbaceous plants. The stem has three leaves, and the flower three petals. These, therefore, considering the diminutive size of the whole structure (scarcely six inches in height), and the singularity of their form, may be said to be more curious than beautiful, but they are interesting. Though hardy, they require pot culture to be seen to advantage. They are tuberous-rooted perennials, and propagate but slowly by dividing the roots; but they may be raised from seed, which is inclosed in a berry. This may be sown in pans, and be raised in a frame, and pricked out three or four in a pot to grow, and, lastly, potted singly into sixty-sized pots. All those curious in plants should grow them, though, like many other curious plants, they are greatly neglected. They flower very early in spring, and grow best in peat soil.

TRIPTILION. [Compositæ.] The genus contains a beautiful greenhouse perennial. Soil, sandy peat. Increased by division. The plant is impatient of over-watering, especially in winter. *T. spinosum*, flowers blue, in July.

TRITOMA. [Liliaceæ.] Beautiful hardy or half-hardy herbaceous plants, requiring a light dry soil and warm or sheltered situation, in which they produce their upright

spikes of drooping scarlet tubes freely in the autumnal months. They should have a border under shelter of a wall, and the soil should be sandy. They throw out suckers from their roots, by which they may be increased. They are sometimes called *Kniphofia*. The following are the best:—*T. Burchellii*, *T. pumila*, *T. Rooperi*. *T. uvaria* is a fine plant. All bear orange flowers.

TRITONIA. [Iridaceæ.] Showy bulbous plants, closely allied to *Ixia*, and requiring very similar management. *T. aurea*, with orange-coloured flowers, treated like the better kinds of *Gladiolus*, makes a splendid bed in the flower garden. They are mostly very well adapted for pot culture.

TROLLIUS. GLOBE FLOWER. [Ranunculaceæ.] Showy herbaceous perennials, quite hardy, growing in ordinary garden soil, and increased easily by parting the roots during the dormant season.

TROMOTRICHE. See STAPELIA.

TROPÆOLUM. INDIAN CRESS. [Tropæolaceæ.] Soft-stemmed climbing herbs, mostly ornamental, sometimes splendid, part of which are annual, and others perennial, having tuberous roots. *T. majus*, the common Nasturtium, as it is called erroneously in gardens, and its varieties, may be sown in the open ground in March, where it is to bloom and bear through the summer, and requires neither care nor attention. These are beautiful plants everywhere, in rich ground covering the surface with foliage and flowers, or climbing up stakes and hiding unsightly fences or other objects, or potted and placed on the window-sill, where the burning heat and limited food arrest their vegetation, but add profusion to the blossoms and intensity to their colours. *T. minus* is smaller, but equally effective in its way. The double orange-coloured variety of *T. majus* is a greenhouse plant, as is also the double scarlet Nasturtium, which is the double-flowered variety of *T. minus*. They are increased by cuttings, and preserved, like other half-hardy things, in the greenhouse during winter for planting out in summer, where, in hot dry situations, they are really splendid. *T. tricolor* and its varieties, *T. pentaphyllum*, *T. brachyceras*, and *T. azureum*, are favourites among the tuberous climbing species, and can only be grown successfully upon proper trellises, or with adequate support.

The tubers must be potted in sand, loam, with a third of leaf-mould, and placed in the greenhouse in the full light. This is best done about February; but they sometimes commence growth in autumn, and, if so, must not be checked. As they send up their thread-like shoots provision must be made for their support by placing a trellis, over which the stems are to be from time to time carefully trained. The plants will require air and a moderate supply of water; and after they have fairly begun to grow, and before they are trellised, they should be placed in the pot they are to fill, which, if the tuber is a strong one, should be not less than ten or twelve inches across. *T. pentaphyllum* is hardy if planted deep in light rich soil in a sheltered place, such as near a wall; and *T. speciosum* may be similarly treated, and is very beautiful. These two are now referred to *Chymocarpus*. There is another group containing several ornamental species—tender perennial plants, without tuberous roots, mostly blooming in winter, and requiring to be often renewed from cuttings. Of this *T. Lobbianum* is an example. It must be kept in mind that they all require plenty of air, moderate but careful watering, plenty of drainage, and watchfulness, as the shoots grow, to place them as they should grow upon the trellis, otherwise shoots will twine round each other, instead of distributing themselves properly on the wirework; and when they once get matted it is very difficult to untwine and release them.

TRUMPET FLOWER. See BIGNONIA.

TUBEROSE. See POLIANTHES.

TULIPA. TULIP. [Liliaceæ.] Hardy and very showy bulbs. The variegated Tulips of the gardens are the progeny of *T. Gesneriana*: these flowers are grown in collections, and have a noble effect. The bulbs are planted in October or November, shoot above ground in February, and bloom in May. They grow in nothing so well as in plain good sandy loam, taken from a pasture with the turf rotted in it; and it is the custom to dig out the bed from two to three feet deep, that this soil may be placed therein. They are planted six inches apart, the bed being four feet wide, and containing seven flowers across. The tallest flowers, which are known well to the fanciers, are planted in the centre row; those a little shorter in the rows next to the middle; and the shortest

outside; so that the Tulip-bed, when in flower, looks like a bank of bloom. The small offsets are planted in separate beds until they grow large enough to plant in the principal beds. They are raised from seed to produce new varieties, and they multiply by offsets, which come of themselves. The seeds may be sown in pans or wide-mouthed pots in the early spring or the autumn, and placed in a garden frame: they will come up, and about June turn yellow and die down, but little bulbs will have formed. Some take them up and replant them, but if they are not too thick they may be left until the next year. They will be five or six years before they bloom, and then perhaps only show one colour, instead of being striped; they are then called breeders, and may bloom of self-colours some years before they break into stripes. They are an imposing flower, and when very good will bear a high price until the sort is widely propagated. The early Tulips are becoming numerous, rich in their varied colours, and truly valuable as spring flowers. Thirty or forty varieties may be found sufficiently distinct to be seen at a distance, but they are only border flowers. The Van Thol Tulip, a distinct early sort, is the *T. suaveolens*: this blooms naturally in April, and is very well adapted for forcing even much earlier than this. Few of the other species are cultivated except as curiosities.

TUTSAN. See **ANDROSÆMUM**.

TWEEDIA. [Asclepiadaceæ.] Greenhouse perennial twiners, with neat pretty flowers. They are raised from cuttings in sand under a bell-glass, with a little bottom heat. When the cuttings have struck root they should be potted in three-inch pots, in a compost of two parts sandy loam and one part turfy peat, with proper drainage, made with broken potsherds one-fourth up the pot. The pots may be placed out of doors in the summer time in the shade, where their roots cannot strike through into the ground. The plants must be topped to make them throw out lateral shoots, and when the first pots are full of roots they may be planted in pots eight inches across, and the proposed trellis or support on which they are to grow may be put to them: an upright pillar is as good as anything, formed of wire, and the plant should be trained round and round it. The bloom will come

in bunches at the end of every shoot. A dry frame or pit will protect them in winter. The only ones cultivated are *T. floribunda* and *T. versicolor*.

ULEX. FURZE. [Leguminosæ, § Papilionaceæ.] Every one knows the common form of this wild prickly shrub, with its golden blossoms, "unprofitably gay." Even this plant has few rivals in the wilderness scenery, sometimes added to modern pleasure-grounds; but still richer is the double-flowered variety, which deserves a place in the foreground of all shrubberies, no less on account of its perpetual verdure than of its blossoms. *U. nana* is a dwarf trailing smaller kind, equally showy, and well adapted for planting on rough rock-work on a large scale. These plants cannot be said to require culture; they grow anywhere, and on any soil, which for the dwarf kind cannot be too poor. The double one is propagated by cuttings, planted in a shady border under a hand-light; the others are raised from seeds. The common Furze is sometimes used for fences.

ULMUS. ELM. [Ulmaceæ.] Hardy deciduous timber trees for the most part. Deep dry sandy loam. The common sorts by seeds, layers, or grafts; the varieties by grafting. The most ornamental are the *variegated* and the *drooping*.

UVULARIA. [Melanthaceæ.] Neat dwarf hardy herbaceous perennials. They grow with ordinary attention in the common soil of gardens, preferring a cool situation, without stagnant moisture, and are propagated by division.

VACCINIUM. WHORTLEBERRY. [Vacciniaceæ.] Hardy deciduous or sometimes evergreen shrubs, mostly ornamental. Sandy loam or peat. Suckers or layers. There are many species in cultivation.

VALERIANA. VALERIAN. [Valerianaceæ.] Hardy perennials, some of which are pretty, but not remarkably ornamental. They may all be grown in the open border in ordinary garden soil, and the smaller ones also in pots among collections of alpine plants. They increase readily by division of the plants.

VALLISNERIA. [Hydrocharaceæ.] A curiosity worth the attention of all garden amateurs. It is an aquatic, and is one of the many subjects of deep interest which nature offers to the contemplative mind, without any of the attractions

conventionally styled beauty. It may be grown in the window of a living-room, planted in a deep clear glass cylinder, the root being fixed among some loamy soil at the bottom, and the glass kept filled with clear water, which should be changed or overflowed about once a week. The plant grows entirely under water, except its tiny flowers, which, attached to the roots by long thread-like spirally-turned stalks, just reach the surface to develop themselves. The species is *V. spiralis*: it may be grown in a hothouse or greenhouse, or in the open cistern, or in a window, with equal facility.

VALLOTA. [Amaryllidaceæ.] Beautiful greenhouse bulbs. Sandy loam, peat, and leaf-mould. Offsets. They require the treatment of *Cyrtanthus* and *Amaryllis*. The one cultivated is *V. purpurea*.

VENUS'S FLY-TRAP. See *DIONÆA*.

VENUS'S LOOKING-GLASS. See *SPECULARIA*.

VERBASCUM. MULLEIN. [Scrophulariaceæ.] Large spiry-growing hardy perennials, strikingly effective in large borders or towards the margins of shrubberies. They are easily-grown plants, thriving in any garden soil, and merely requiring to be sown where they are to bloom, the duplicate plants in each patch being thinned away, leaving only the strongest. The seed should be sown about June in one year to produce flowering plants for the next season. They are mostly biennials, and young plants should therefore be raised from seeds annually. The perennials are increased both by seeds and division. They are mostly yellow. *V. alopecurus*, *V. blattaria*, *V. formosum*, *V. grandiflorum*, *V. phæniceum*, flowers purple, and *V. spectabile*, flowers yellow and purple.

VERBENA: VERVAIN. [Verbenaceæ.] Beautiful flower-garden plants. The genus consists for the most part of perennial species, requiring protection during winter: an indigenous species is a mere weed. *V. venosa* is nearly hardy, an upright-growing plant, bearing purplish rose-coloured flowers: this propagates readily by parting its creeping underground stems. The race of half-hardy Verbenas has given rise to those fine seminal varieties which are now during summer to be seen decorating every garden. *V. Melindres* or *chamædrifolia* was one of the first favourites, but, like most of the other species, it has been lost amid the more

beautiful sorts that have sprung up under the florist's care. It is the creeping habit, however, and abundant bloom of *V. Melindres*, which have given much of their value to the florists' seedlings; their size, and the more erect habit and fragrance observable in recent varieties, having been derived from *V. teucrioides*. The *Verbena* strikes freely under a bell-glass in light sandy soil, and very quickly in a mild hotbed; and it grows freely in any rich light soil—consequently most flower gardens agree with it. New varieties are raised from seeds. The seeds should be sown in pans, and placed in a greenhouse or frame; the young seedlings at first pricked out into pots, half a dozen in a pot; and after that planted out in beds six inches apart, until it is seen what flowers they produce, when such as are worthy may be propagated. There is not a better plant for flower-beds and borders at present in cultivation. In geometrical gardens those which approach nearest to the admirable habit of *V. Melindres*—which creeps along the ground, spreading and rooting at every joint, until it covers a bed like a carpet, and throws up its umbels or trusses of flowers all over its allotted space—should be selected. Whites, lilacs, deep purples, reds, and pinks of all shades abound in this brilliant family. In planting a geometrical garden uniformity of colour should be kept in view: thus, if a parterre be formed of twenty-four beds, these consisting of four sorts of figures, six of each kind, then three of that six should be of one colour, and three of another—say three scarlet and three white; in the next six, three pink and three dark purple. The other twelve beds may be made up of annuals or perennials of other kinds; but four distinct colours of *Verbena* cannot be surpassed, for the length of time they are in bloom, by anything that can be selected. Bright blues and bright yellows can be furnished by other things; but scarlet and white, flesh colour, or pink or deep purple, cannot be furnished by any tribe of plants so well as the *Verbena*, because they are as close to the ground as a carpet, and last in full bloom for months. Cuttings put in in the autumn will make splendid plants for turning out in the early spring; but when a stock of plants has not been secured, or the supply is diminished by losses in winter, a few plants put in heat in February will soon supply cuttings, which

strike in a few days in a hotbed, and may there be allowed to grow long enough to use their tops as cuttings before being potted, this process being repeated as often as necessary to make up the supply. The smallest portions serve for cuttings. Such plants require a good deal of nursing, and to be perfectly hardened before being planted out.

VERONICA. SPEEDWELL. [Scrophulariaceæ.] A very large genus, consisting almost entirely of hardy perennials. About a score are insignificant annuals; some half-dozen are shrubs requiring greenhouse protection; and the rest are hardy perennials, most of the larger growing of which are adapted for the mixed borders, and are really showy with their long narrow close spikes of flowers, usually blue. These latter may be said to require no culture; they grow with the greatest facility in garden soil of any description; increase extensively, if required, by partition of the roots; and live through all the inclemencies of winter and the droughts of summer without suffering material detriment. There is a great sameness in the appearance of many of them, and they are probably mere natural hybrids. The greenhouse shrubby species—of which *V. speciosa*, *V. formosa*, *V. variegata*, and *V. Andersonii* are the most desirable—are multiplied by cuttings planted in sandy soil, and placed in a gentle heat, and the plants should be potted into rich light loamy compost. The necessary bushiness and compactness of growth are given to them by the usual process of continued topping till the desired form is obtained. These shrubby kinds succeed well in many situations, planted out for the summer months; but they are not strictly “bedding-out” subjects. In mild winters they will survive at the foot of a wall in a warm aspect.

VERVAIN. See **VERBENA.**

VIBURNUM. [Caprifoliaceæ.] A genus consisting for the most part of hardy shrubs, including the Laurestinus and the Guelder Rose. The Guelder Rose, *V. opulus*, is very familiar in shrubberies: the bloom is white, in bunches that form complete balls, and, being abundant, is very effective. This is generally propagated from suckers, which come up, like those of the Lilac, very freely; they should be taken up any time after the fall of the leaf, before the buds begin to

swell, and be planted out in rows, about eighteen inches from plant to plant, and two feet between the rows, forming nursery-beds; and, as they are generally grown into bushes, they should be cut down to three or four inches high. Their first growth should be regulated, so that they do not grow out of form; thus, if any shoots are too vigorous, or are growing awkwardly, the ends should be taken off, to keep them within bounds and help forward the rest. If any of them are to be formed into standards the straightest and tallest should be selected, and planted by themselves, and pruned to a single stem. When these begin to start all the buds must be rubbed off, except the three or four nearest the top, the leader will shoot up a good deal faster for preventing the side-shoots from robbing it of nourishment, and as it grows on, more side branches will come; but the bottom branches may be cut off close, so long as three or four shoots can be left. When the plant is tall enough the top may be cut out, to encourage side growth at the top, but not down the stem, where the buds must always be rubbed off as soon as they come. There is a great variety of species, but few are so handsome as the Guelder Rose, except its evergreen congener, the Laurestinus. *V. macrocephalum* and *V. plicatum* are, however, fine showy shrubs. Rich loamy soil. Layers, cuttings, or suckers.

VIBURNUM TINUS (LAURESTINUS).—This is one of the best of cultivated garden shrubs, being evergreen, free-growing, free-blooming, of handsome appearance at all times, and flowering in winter. It is open to but one objection, and that is that it is sometimes injured by severe frosts. The Laurestinus is generally seen as a dwarf bushy evergreen shrub. It is mostly raised from cuttings, though sometimes from layers. The cuttings are taken in autumn, and planted in sandy soil in a north border; or, what is safer, they are planted in deep seed-pans, which are plunged where they can be readily sheltered in case of very severe weather. They become well rooted during the next summer, and by the following spring may be planted out in rows eighteen inches apart, by six or eight inches in the row. From this position they may be removed, after twelve months' growth, to where they are to remain. They require no particular soil.

VICIA. VETCH. [Leguminosæ, § Papilionacæ.] Hardy annuals or perennials. Common soil. Seeds or division.

VIEUSSEUXIA. [Iridacæ.] Beautiful bulbous plants, requiring the treatment of *Ixia*. Peat and loam. Offsets.

VILLARSIA. [Gentianacæ.] Aquatic perennials, hardy or half hardy. Rich loam; shallow water; protection in winter for the exotics. Increased by division.

VINCA. PERIWINKLE. [Apocynacæ.] Pretty hardy shrubby plants, always dwarf and evergreen, all of trailing habit, and well adapted for covering the surface of the ground in shady situations where little else will live. They are increased at pleasure by separating the rooted trailing shoots. Common soil. The best are *V. herbacea*, *V. major*, and *V. minor*. There is a variety with variegated leaves.

VIOLA. VIOLET. [Violacæ.] A large genus of pretty herbaceous plants, almost all of which are hardy. The first to be mentioned is the Sweet Violet, *V. odorata*, of which the common wild forms should be planted in abundance in every shrubbery, for the sake of the supply of their odoriferous blossoms. For general cultivation the varieties known as the Neapolitan, the Russian, and the Tree Violet are the best. The Russian is quite hardy, and requires only to be planted in rich soil, which must be renewed, in part at least, annually. The others need higher culture. To grow the Neapolitan sort a bed of rich light soil must be made up, and about the beginning of May the old plants must be divided into two, three, or more, according to their size. These young plants are put out, and carefully watered, when necessary, through the summer, and are either allowed to bloom in these beds, some protection being afforded them to keep off heavy rains and frost, or they are taken up about the end of September, potted, and the pots kept in a cold dry frame during winter, with such other protection as the season renders necessary. They may be forced in frames by the application of gentle heat, and by this means it is no unusual thing with the luxurious to have Violets all the winter. The "Tree Violet" is a double-flowered dark variety, which, if kept trained to a single stem, acquires the appearance of a miniature tree. This requires to be grown as a hardy plant in frames, the soil being turfy loam, decomposed cowdung, and leaf-mould

in equal parts. To secure the tree-like habit the crown of vigorous young plants must be encouraged to push upwards by the removal of all lateral growth, otherwise this variety spreads out its runners just like other Violets. There are several other varieties of the Sweet Violet, but these are the best. The whole genus, with one or two tender exceptions, are worth cultivating as hardy perennials. They grow very freely in good garden soil, preferring loam moderately rich. Increased by division. Those which grow with stems, like the Heartsease or Pansy, should be frequently renewed from cuttings, which should, moreover, be as far as possible the young shoots from the root, in preference to the tips of the older shoots.

VIOLA TRICOLOR (PANSY).—The numerous varieties of this popular flower, frequently called Heartsease, originated from the common three-coloured Violet. Like the varieties of the Pink, these require to be constantly renewed by striking cuttings; for, as may have been observed by many who have grown them, the blooms come smaller and out of character as the plants get larger and older. It is true there are more flowers on the plants when they enlarge, but there is a great alteration for the worse in their colours and forms. The ground in which they thrive most is good rich loam. They should be grown in beds six inches apart every way. The side-shoots make the best plants. They should be stripped off when they are two inches long, and they may be put into the ground half their length, and covered with a hand-glass. If the place be shady, so much the less trouble; but if not, the hand-glass must be covered so as to keep off the hot sun: the cuttings must be kept well watered till rooted. To have the Heartsease in perfection there should be a constant supply of cuttings; and when they are struck, which will be seen by their beginning to grow, they should be very carefully lifted, so as to break none of their fibres, and planted out wherever they are to bloom, whether it be in the borders or in beds, the evening after sunset being chosen for the job of transplanting, because the plants have the benefit of all the night to settle before the sun can hurt them. After they are planted out they should be well watered. When the plants get large cut them down close, and all the shoots that come

will make excellent cuttings. The Pansies, which are of all sorts of colours, should be had in bloom all the year, except in winter, a succession of young plants being raised for this purpose.

VIRGINIAN STOCK. See MALCOMIA.

VIRGIN'S BOWER. See CLEMATIS.

VISCARIA. [Caryophyllaceæ.] A small genus allied to *Lychnis*, containing some neat small-growing perennials, as *V. vulgaris*, *V. neglecta*, *V. alpina*, and *V. Helvetica*, forming pretty rock plants. These perennials are increased by carefully dividing the dense tufts of branches which they form, retaining a share of roots to each slip if possible, and treating the divisions rather as cuttings than as plants, by keeping them in a close frame until they begin to grow. These like a very open soil, containing pounded bricks or old mortar, or any substance of similar texture. The genus also contains two very showy hardy annuals, *V. cæli-rosa* and *V. oculata*. These may be sown in the open borders with other hardy annuals in March and April.

VITTADENIA. [Compositæ.] Half-hardy sub-shrubs. Light loamy soil. Cuttings or seeds. *V. triloba*, flowers pinkish.

VRIESIA. [Bromeliaceæ.] Showy stove perennials, with the habit of *Æchmea*, and requiring to be cultivated in a similar manner. *V. speciosa*, the handsomest of the species in cultivation, has the leaves marked with transverse black bands, and bears its flowers in an upright spike, which terminates in a two-ranked head of scarlet bracts, each of which supports one white flower; the beauty of the plant, as is the case in this genus, lies in the richly-coloured bracts.

WACHENDORFIA. [Liliaceæ.] Fine greenhouse bulbs, requiring the treatment of *Watsonias*. Loam and peat. Offsets.

WALFENIA. [Scrophulariaceæ.] Hardy herbaceous plants, requiring a dryish soil. Seeds and division. The only one to grow is *W. Amherstiana*.

WALL CRESS. See ARABIS.

WALLFLOWER. See CHEIRANTHUS.

WALNUT. See JUGLANS.

WARRATAH. See TELOPEA.

WATER LILY. See NYPHÆA.

WATER PLANTAIN. See ALISMA.

WATER REED. See ARUNDO.

WATSONIA. [Iridaceæ.] Stout-growing greenhouse bulbs of ornamental character. They should be treated like the stronger-growing half-hardy Gladioli. Peat and loam. Offsets.

WEIGELA. [Caprifoliaceæ.] Very handsome hardy deciduous shrubs, adapted for planting against ornamental walls. They are free-growing, striking readily from cuttings or from layers, and grow vigorously in good garden soil. The blossoms, at first white, but changing to rose pink, are produced, generally in great profusion, in spring upon the partially bare branches, the development of the flowers being coeval with the first growth of the leaf-buds. *W. amabilis* and *W. rosea* flower pink. *W. lutea* blooms yellow.

WELLINGTONIA. [Coniferæ.] A magnificent hardy evergreen tree. Loam. Seeds. *W. gigantea* is the only one.

WHITLAVIA. [Hydrophyllaceæ.] Hardy annuals of ornamental character. Rich light soil. Seeds. The one to grow is *W. grandiflora*.

WHITLOW GRASS. See DRABA.

WHORTLEBERRY. See VACCINIUM.

WILLOW. See SALIX.

WINDFLOWER. See ANEMONE.

WINTER ACONITE. See ERANTHIS.

WINTER CHERRY. See PHYSALIS.

WISTARIA. [Leguminosæ, § Papilionaceæ.] Hardy vigorous-growing deciduous climbers, of which two species are frequent in gardens. The most beautiful of the two is *W. Sinensis*, formerly named *Glycine Sinensis*, a perfectly hardy climbing shrub, bearing long racemes of purplish-lilac flowers before the foliage is produced. They grow very freely in rich loamy soil. Young plants, when newly planted, are often of slow growth; but as soon as they get established they grow very rapidly, the annual shoots often extending twenty feet in length. The flowers are, however, produced on spurs of the old wood. It is generally grown on a south wall, and early in the spring makes a show that eclipses most other things near it. Horizontal training is the best for this plant;

in fact, it looks well when a single shoot is carried along horizontally near the top of a wall, other plants being beneath it. It forms a fine conservatory climber, and we have seen a very good effect produced by training a single stem along the upper angle of a span-roofed greenhouse. It is propagated by layers, which root freely if pegged underground any time during autumn. These may be taken off in the following autumn, and potted, for the convenience of planting out when fully established. While in pots, like many other more hardy plants, it wants the protection of a frame in hard weather, or the pots must be plunged to prevent the frost penetrating the sides of the pot. There is a white variety. *W. alba*.

WITSENIA. [Iridaceæ.] Greenhouse shrubs of curious appearance, having grass-like, or rather small Iris-like leaves arranged in the same equitant manner. *W. corymbosa* is a favourite among greenhouse plants. It multiplies fast by offshoots from the base, and is not conspicuous until it has spread to a good-sized potful. When required to be increased small portions may be removed from the outside, so as scarcely to be missed from the old plant; these are to be potted into small pots, in three parts peat soil and one part sandy loam, with a good drainage at the bottom of the pot; they should be placed on a shelf near the glass, and as soon as their roots fill the pots they should be removed to five-inch, and from these to larger ones. They require, from the lightness of the soil, rather close attention to the watering; and the plant soon looks untidy if the dead leaves be not picked off as they decay. Few plants are more carelessly treated than old specimens of the Witsenia, and consequently they are rarely seen in good order.

WOODBINE. See **LONICERA**.

WOODSIA. [Polypodiaceæ.] A small group of ferns, containing two indigenous species of very small size, and prized on account of their rarity. Some exotic species are hardy, and desirable for rockwork. They may all be grown in turfy soil, and require to be kept free from stagnant moisture about the crown of their roots. Propagated by division. The principal ones grown are *W. hyperborea*, *W. Ilvensis*, and *W. obtusa*.

WOOD SORREL. See OXALIS.

WOODWARDIA. [Polypodiaceæ.] Hardy and deciduous ornamental ferns. Peat and loam. Division. The chief are *W. onocleoides*, *W. radicans*, and *W. Virginica*.

WORM GRASS. See SPIGELIA.

XERANTHEMUM. [Compositæ.] Hardy annuals of the composite kind, now almost expelled from gardens by the gayer annuals from California and elsewhere. They must not be confounded with the showy yellow and white everlasting flowers, as they are called, which have been, and, indeed, now are sometimes named *Xeranthemum*. They are among the most easily cultivated of annuals, requiring only to be sown about the end of March in the open border, and thinned out for flowering. A succession may be sown a month later than the first sowing if it is required.

YEW. See TAXUS.

YUCCA. ADAM'S NEEDLE. [Liliaceæ.] Fine exotic-looking shrubs, most of them hardy; others require some amount of protection. They are Aloe-like, with narrow leaves, some growing up with an erect stem, which in time becomes forked, and others being almost stemless, the leaves growing close to the ground. The flowering stem in all is erect, bearing a close panicle of large cream-coloured drooping Tulip-like blossoms. They all grow in loamy soil, and the hardy kinds have a fine effect planted sparingly in prominent positions on rockwork. The best are *Y. draconis*, *Y. filamentosa*, *Y. gloriosa*, and *Y. recurva*.

ZAMIA. [Cycadaceæ.] A genus of remarkable-looking plants, related both to palms and ferns, and exceedingly interesting in a collection of plants. There are some few greenhouse species. They require to be planted in light sandy soil; and, as they often exist for a long time with but little progress, the pots should be carefully drained and as carefully watered.

ZAUSCHNERIA. [Onagraceæ.] Pretty half-hardy perennial. It forms a densely-branched mass, bearing numerous erect scarlet Fuchsia-like flowers, and is well suited for the decoration of the flower garden during summer. It propagates very freely from cuttings, or also by division. The old plants require to be kept rather dry in winter. It may be

planted out in any moderately good garden soil, and requires no subsequent culture beyond what is routine. *Z. Californica* is the only one cultivated.

ZEALANDIA. [Gramineæ.] Stately grassy plants, useful for effect. Common soil. Seeds reared in a gentle heat, and planted out in May.

ZENOBIA. [Ericaceæ.] Fine hardy shrubs, allied to *Andromeda*, and requiring the same treatment. Peat soil. Layers.

ZEPHYRANTHES. [Amaryllidaceæ.] Pretty dwarf bulbs, nearly related to *Amaryllis* and *Habranthus*, and requiring the same mode of culture. One or two kinds are hardy.

ZICHYA. [Leguminosæ, § Papilionaceæ.] Handsome greenhouse evergreen climbing shrubs, formerly named *Kennerdya*, and requiring the same culture as that genus. The best are *Z. coccinea*, flowers scarlet; *Z. pannosa*, flowers crimson; *Z. tricolor*, flowers red, yellow, and purple; *Z. villosa*, flowers vermillion.

ZINNIA. [Compositæ.] A genus of Mexican annuals, bearing flower-seeds of many different colours, seedling varieties having become numerous. The most ornamental species is *Z. elegans*, which grows best in peaty soil and in a cool situation. The plant may be termed coarse, and is better looking in moderate than in rich soil. The seed may be sown in the open ground, or in heat, according to the time it is desired to be in flower. When large enough it may be planted out at once into beds a foot apart, or in the border three in a patch. When seed has been saved from a single plant, and none other has been near, the plants have come pretty constant to the parent; but, generally speaking, in the seed that is purchased we obtain all the colours from scarlet to light pink and to dark crimson, and all the shades from dark chocolate to light purple and lilac. It is a difficult matter to produce, year after year, anything like constancy in annuals; for the only way is to destroy all others that can cross the seed, or to isolate those for seeding so that nothing can reach them. Muslin bags have been tried with some effect, but it must be done very early.

JANUARY.

CALENDAR OF OPERATIONS FOR THE FLOWER GARDEN, SHRUBBERY, AND GREENHOUSE.

By the commencement of the new year all our alterations, removals, turf laying, gravel making, box edgings, and other ground-work should be drawing to a close. We do not deny that they can be carried on far later; but an English winter can be little depended on for fine weather, and both wet and frost in extreme will frustrate our best endeavours. On this account we ought always to be ready with our proper amount of labour in October, and from that time until all is done lose not a single fine day. Again, as planting is always a check upon trees, with all the care we can use, the trees and shrubs we require should never be taken up till we are ready to plant them; for, in however few cases it may be fatal, it is always more or less injurious to keep the plants out of the ground. No digging or trenching can go on with advantage in wet weather: it may go on well in frosty weather, though when the earth is frozen very hard there is more labour attached to the job, and it goes on slower. The work, however, is quite as well done, and often, if the men do their duty with the pickaxe and break the lumps a little, it is of great service to bury frozen earth and bring up the lower spit to freeze. However, for pro-

gress, dry moderate weather is the most advantageous. Being ready for the work in October, you may, nevertheless, be stopped altogether by excessive wet for a considerable time, and the intervals of fine weather may not be long enough to permit the soil to dry. All this should be well considered, and no work should be wilfully put off to a later period. January may be mild open weather, or cold dry weather, in which case whatever is left undone should be done without delay. All newly-planted trees should be examined: their stakes may have been disturbed, or their fastenings come loose, and unless these things are set to rights at once they would suffer greatly.

Collecting Manures.—This is a general sort of duty in the winter months. Peat earth, road-drift, dead leaves and vegetable matter, sand, marl, loam, turves for rotting in heaps, horse, cow, sheep's, poultry, and pig's dung, and all other stuffs useful in composts, should be gathered together, but always in separate heaps, to lie until wanted. The turves to lie and rot ought not to be cut more than two inches thick, and those who cannot obtain them any other or cheaper way should buy them as if for laying down on a plot,

and pile them in a heap; for this is, after all, worth every penny that is paid, for the groundwork or staple matter in all kinds of composts. The great drawback is the quantity of grubs usually found in the roots of grass; but these must be got rid of by hand-picking. Set a boy to remove the turves from one another, and pick out all the vermin he sees between them, whether slug, wireworm, or grub, and pile them in a fresh place: the vermin usually get to the part where the turves meet, for the sake of the air. Picking them in this way clears away two-thirds the first picking; in another week or two remove them back to the first place, and you will find another lot; and about the third or fourth picking will get rid of all but a few stragglers. At the end of a year the turves are to be disturbed by cutting thin slices all down with a very sharp spade, and mixing it, chopping the stuff and knocking it to pieces, when any wireworm, grub, slug, or other vermin that happens to be left, is generally exposed, and must be destroyed, if the spade has not already cut it in half. The peat, dung, vegetables, &c., must each be kept in its distinct heap, to be ready when wanted. Leaves take two years to rot, and sometimes more; turves will be over three, although usable at the end of two. The refuse or spent dung of Melon and Cucumber beds, laid one year together after it is done with for the frame, is always valuable; for with all flowers dung of any sort should be well rotted.

Pruning and Nailing Climbing Plants, both those which are fresh planted, and others that have been established some time, may be done in all the winter months

when the weather permits. Roses, *Pyrus Japonica*, *Wistaria Sinensis*, Jasmine, Honeysuckle, and many other climbers may be now planted for the first time, and be spurred in; but all the weakly branches may be cut away, and the strong ones nailed out at proper distances, whether horizontal or fan-fashion.

Pruning generally.—Lilacs, Laburnums, and Almonds, which have their set times for spring pruning, may nevertheless be touched this month, whenever the quantity requiring to be done shall cause you to have it some time about; for amateurs have not always the requisite strength of hands to do anything rapidly and where a man does everything with his own hands, and trusts nobody, he can hardly begin too early, though it would be very easy to begin too late; that is, so late as to be useless. It must be recollected that all flowering shrubs show their bloom-buds early, and must be touched sparingly with the knife for the proper time to do the heavy work is directly the bloom is over; but all thin shoots, where they are too crowded and have no flowers on them, or rather no bloom-buds, may be taken away clean. Where the branches have bloom-buds on them we must naturally spare them until they have bloomed. Lilacs, *Deutzia scabra*, and some others which grow before they flower, nevertheless show, by the boldness of their buds, which shoots are likely to bloom; and all the spring pruning required is the removal of such small wood as is not likely to produce flowers, and can be spared with advantage.

Preparing for early Flowers.—It may be generally assumed that nothing in a state of growth can

stand the changeable out-of-door climate till the middle of May; therefore all preparations for early flowers must be made by some kind of protection until that time. Thus Sweet Peas may be sown in pots, to be placed in a cold frame, and these, with only the precaution of covering from frost, will be fit to turn out in a forward state as soon as the weather renders it safe; whereas, if they were sown in the open ground, they would hardly have come up. Many so-called hardy annuals may be raised in the same way, so that you may be in full bloom before June is out, while all those sown in the open borders will be coming into flower by the time the first are out of bloom or declining. Pots sown with all or any of the annuals that are usually sown in patches this month may be hastened still more by putting into the greenhouse; for they may be almost flowered before they are turned out. Some may be sown out of doors under hand-glasses, to be covered every night close down. Sweet Peas may be sown in lengths or patches in thickly-cut turves, which are placed grass downwards on shelves; and by cutting a slit or opening sloping, half an inch deep in the midst of the soil and roots, and stuffing the peas in at moderate distances, and pressing the earth upon them, they will advance as well as in pots, and with this advantage—that the turf is removed whole and inserted in the ground, affording the best possible nourishment to the plants.

Auriculas.—Cover up well with mats in frosty weather, but give all the air possible on fine days. If severe frost occurs, by day they should remain covered up. The roots must not get quite dry, but

it is equally imperative that the soil be not kept constantly wet. The drier they are when it is necessary to cover up much, the better. When water is required give it thoroughly, but let it be on a mild day in the morning, with full ventilation all the day.

Anemones.—Treat the same in all respects as *Ranunculuses*. The autumn planted want protection by haulm or litter; or, for want of them, hoops and mats across the beds. The common single *Anemones* are much more hardy than the double, and will stand a smartish frost without any protection whatever.

Beds of Flowers, especially when the plants are small, should be covered against frost; but, if they have not been, the plants should be examined at every thaw, to see that the roots have not been disturbed, or, if they have been, to press them down into their places.

Biennials and Perennials, generally raised from seed last season, and not planted into their blooming places, may be got in at once if the weather is fair and mild; or, if not, as early as this condition exists long enough to admit of their being got in. Newly-planted subjects overtaken by severe frost should be mulched.

Bulb-beds, in general, should be covered during severe weather. It is a good plan to cover the soil permanently with a layer of six inches of leaf-mould, which can be forked in as the spring advances.

Carnations, Picotees, Pinks, and Pansies in frames and boxes.—Those in small pots must be shut up in bad weather, and wet weather in particular. We do not think a frost would do the mischief that wet would; for dampness is fatal to most things, but certainly when

confined in small pots full of roots. They must have no water while they have any moisture in the soil. The Pinks and Pansies in their blooming-pots, and especially the Pansies, are kept growing as well as they can be during the winter, for the sake of their early bloom. Pansies intended to be flowered in the pots, and not yet shifted to their blooming-pots, should be shifted directly or early in February, and well watered in to settle the earth about the balls at their roots; they should be covered close up for a day or two after this, but all alike should have air, and plenty of it, in mild dry weather.

Dutch Bulbs.—Holland, where bulbs are more successfully grown than in any other country, is said to be without any original soil; for light sandy alluvial soil is found more than forty feet in depth, and at the bottom of this may be found whole trees of immense size, which, on exposure to the air some time, fall to pieces. It is in this light soil, every yard of which was once under water, that the bulbs flourish so exceedingly. As, however, the great secret of their success arises from making the best use of the means at hand, it may be worth while mentioning that the top six inches are always well manured with good well-rotted cowdung, that the bulbs are planted in autumn, covered with straw all the winter, and, when the straw is removed, watered all over with liquid manure formed of cowdung and water. This settles the surface down, and the wind does not disturb it; whereas, if the surface were not run together, but left loose as it is under the straw, the wind would blow it away in clouds of dust. This may help us in our cultivation of Hyacinths.

Half-hardy things under protection should have air in all fine mild weather, and not be at all moved beyond what is actually necessary. All but frost by way of temperature is safe, and even one or two degrees of this are not killing; but too much wet is bad, and therefore water should be seldom administered, and rain not allowed at all on them, unless the plants are taken from their frames, and the frames covered up dry. Frames and pits should be well cleaned and swept all over inside with a stiff brush or a birch broom, to keep them clear of dirt and vermin; for nothing conduces more to the good health of plants than cleanliness and dryness of the ground on which they stand. Three or four good waterings will almost carry plants through a winter.

Ranunculuses.—Turn out the soil from the beds, and lay it on each side the hole. Having thus removed, say a foot of earth, fork up the other well, but leave it in the bottom, and let the earth taken out be dug over and mixed once a week, and each time well examined to detect any vermin that may be in it. The Ranunculuses planted in autumn must be protected with litter. It is a curious fact, but not more curious than true, that in Holland wherever they plant Ranunculuses they find celery, and that among Anemones, Narcissus, Tulips, or other bulbs no such intruder appears. We have been assured by one of the most considerable growers in Haarlem that this fact has been noticed so often and so long as to give rise to a notion that Ranunculuses change into celery. With this we will have nothing to do; but we believe the fact, and promulgate it for the consideration of those inclined to

speculate on the subject, and those who in England cultivate the *Ranunculus* to any extent will, perhaps, do us the favour to take notice if they meet with anything of the kind.

Tulip beds.—Let the best bed be covered, at any cost, against frost, so as to prevent even the soil from being frozen, much less the foliage: two or three stakes close to the edge, to keep it in, and litter put all over the bed six inches to a foot thick, will do this. The stakes round the edges will prevent the wind blowing off the litter; but if the bed is hooped the hoops should be placed across, so that the centre would not be more than a foot above the earth in the middle. These hoops should be about a yard apart, and straight sticks from end to end along the centre, and about half way from the centre to the edge. Mats may then be laid over without much difficulty, but it is best to put a net over the hoops permanently, so that there shall be no trouble in throwing over the mats in a hurry, which are frequently required in coming storms at a later period of the spring.

Violet beds, of the Neapolitan and Russian sorts, if sheltered with a layer of open protecting material, such as peas haulm, over which a mat may be thrown in severe weather, will furnish an occasional picking of blossom, especially if situated in a warm corner, which should always be selected for them.

THE ROSE GARDEN.

Although January is not the month we should choose for Rose pruning, there is, where one man does it all, a good deal to get through in a collection of any extent, and therefore towards the end

of the month we should not hesitate to begin upon the most robust and hardy sorts, pruning all the strong shoots in to two or three eyes at the most, and all the weaker ones clean off. It is unsafe to trust to weak branches, for the branch that goes from them will often be found much stronger than themselves, and in that case they cannot sustain themselves in a proper position. The growing Roses in the forcing-house want a considerable supply of water, syringing over the foliage, occasional fumigating with tobacco-smoke, and an even temperature. The China sorts of Roses in pots in the greenhouse, or in pots in the frames, with and without dung, require a good deal of watering when they once set off to grow, and if the pots are filled with roots it is as well to repot at once. Roses may be planted still out of doors, but the further we advance the more care they require, and the less time can they with any safety be left out of the ground; nor does laying them in by the heels at all compensate for it, although it may save them from perishing altogether. Briers may be still procured and planted in rows, and you may select the youngest, straightest, and best for grafting. Young stocks are far more safe to unite, and far better when they have united, than older and more stubborn stuff. The seeds of Roses, left out till now, may be sown, being first cleared of the leaves and wiped dry, in pans lightly covered, and placed in the greenhouse, but never allowed to get dry; they may be looked for in a few weeks.

THE GREENHOUSE.

Most of the subjects in this house require no artificial heat beyond that which is sufficient to banish frost. If 32°, being the freezing point, be avoided, the plants will not be the worse for never feeling the warmth of 35°. Such being the case, the object is to keep down the temperature by opening the sashes whenever the weather is mild and there are no cutting winds. The great difficulty, however, is during a frost, for the necessity of firing is obvious, and the most constant attendance is required to see that the temperature is not raised too high; for it must be checked then by letting out the heat at the top of the house, and unless this is done cautiously there will be mischief. The great disadvantage of increasing the temperature is, that the plants set off growing, or are drawn up weakly, or they are forced into bloom before you are ready for them, or they suffer changes and checks, which perhaps throw off the bloom altogether, especially of Camellias. Give, therefore, all the air you can; and, if you can so manage, rather cover up against light frosts than use fires. Of course you must be prepared, at all risks, to have the aid of fire heat in very severe weather.

Azuleas are coming forward, and showing what they will be. The Indian sorts are as forward as the hardy ones, although the latter have been warmer than they could have been out of doors.

Camellias are rapidly swelling their bloom-buds, and they will require a little attention as to watering. As they open the most prominent places should be occupied

by them, on account of their show; for every *Camellia* flower is a gem at this time of year, and ought to be seen.

Climbing plants in pots are now requiring adjustment to their various holders or supports, of which there are none so effective as shrubby branches of trees, formed into a handsome proportion, stuck in the pots like live instead of dead trees, and with judicious management the plants literally fill up the position well. There have been so many different fancies for the construction of trellises that they would occupy a chapter; but we throw out the hint that, whatever form you adopt, it should be natural, and not a mere round or square, to be filled up with whatever the plant is composed of, as is too much the case. There are fifty ways of doing the same thing, and the more natural the more effective and enticing. Plants with large foliage require a large design, and minute flowers and leaves would be lost on anything gigantic. In the absence of any design, upright rods all round the edge of the pot will be the most simple and effective.

Geraniums. — Checking any shoots that are pushing out of their places by pinching the ends out, and regulating the position of any branches that would be better a little constrained, is the principal business of the cultivator. Keep them near the light; turn them frequently to prevent them from getting one-sided; give water more frequently than hitherto.

Hard-wooded plants in general, such as *Chorozemas*, *Hoveas*, *Eri-cas*, and such-like, are in many cases showing their bloom-buds. *Correas*, *Epacris*, and some

others are in fine bloom. See that they do not get too dry, an error in which many involve themselves in trying to avoid making them too wet. If any of them have filled their pots too full with roots they will require much oftener watering, or else a change from one pot to the other. The former is the best, perhaps, till after the bloom; but a little liquid manure is the best thing to moisten the roots with when there is a lack of room.

Insects.—The pest of the greenhouse during winter and spring is the green fly or aphis, and in the mild weather at this time of year they are sure to make their appearance, on some of the soft-wooded races especially. They should be destroyed by fumigation at the outset, as soon as they are observed; for if left for only a week they will have spread amazingly, and have done considerable damage. The following is a simple mode of fumigation:—Close the house at every point, choosing a day when the air is dull and heavy. Towards evening apply the fumes of strong common tobacco. Get a six-inch flower-pot, with a wire handle like a basket for convenience of lifting about; make in the sides close to the bottom two or three holes as large as a half-crown, besides that in the bottom. Put a “handful” of clear red-hot cinders in the bottom of the pot, and having quickly carried it into the greenhouse, spread over them a layer of the tobacco damped. This is to be covered over with a good layer of damped moss. It will smoke away and dry rapidly, and would then burst out in flames, which would be liable to injure the foliage of the plants; but to pre-

vent this it should be watched, and, when it is ready to burst through, more damp moss added. The pot should be set on three smaller pots, placed so that there may be draught up the hole in the bottom. These smaller pots, or stands as they may be called, should be placed in readiness in two or three parts of the house, according to its size. Place the fumigating pot first at the further end of the house, and when the smoke begins to thicken there remove it to another part, and at last near the door, where it can be finally attended to with little bodily inconvenience. The whole house is to be filled quite full with the smoke, and if tobacco enough was not put in at first more must be added. Next evening the fumigation should be repeated, and the morning after that the plants should have a brisk syringing, and then a fire with ventilation, if need be, to dry up the damp. A less troublesome mode of fumigating is with fumigating bellows, the smoke being puffed in through a small hole, the operator continuing outside. Where the smell of tobacco is objected to, the house should be fumigated with cascarilla bark the following day.

Myrtles are often suffering for a long time for want of a change of pots, and occasionally they have been found so completely pot-bound that the water could hardly go through the ball at all. This state requires that the ball shall be taken from the pot, and soaked for hours until the wet has penetrated every part of the ball, and then it may be repotted in a larger pot with the ordinary turfy soil round it, and pretty well pressed. It will want no more water for a long time.

Orange and *Lemon* trees will be the better for a little top-dressing of sheep's dung, or still better with a moistening of the whole soil with liquid manure, being a spadeful of sheep's dung stirred, after soaking, in nine gallons of water, and the watering with this should be once to four times with plain water.

Rhododendrons are advancing quite rapidly, and a few weeks' fine weather will scarcely fail to bring the early ones into flower.

Routine.—The routine work at this season consists chiefly in attention to cleanliness. In dull damp weather especially, but more or less at all times, what are called soft-wooded plants, such as the *Geraniums*, are very liable to throw off some of their lower leaves, especially if from fear of cold draughts the house has not been enough ventilated. These leaves soon become mouldy under the progress of decay, and it is of the utmost consequence to the healthiness of the plants to have them removed, or the decaying matter will damage that which is living. Any leaves, moreover, that from any cause have been injured—often those upon which water has been carelessly spilled or allowed to stand, or those which receive cold drip from the roof—will all be

liable to this decay when the house is more than usually closed up. The yellow dying leaves should therefore be picked off carefully without wounding the stems, and the fallen dead leaves should be picked or swept up. The latter should be done every morning, and the former as often as once a week; but it should be made a rule to pick off such leaves when they are seen, allowing them no ever time or opportunity to damage the plants. At this season, too, cleanse by washing the leaves of such plants as may have become filthy, either from the presence of insects or the growth of a minute fungus which often attacks greenhouse plants, forming on the leaves little black spots, which spread into large patches if not removed. A piece of soft sponge and some warm water may be used. Such plants as *Camellias*, *Oranges*, *Myrtles*, and all the larger leathery-leaved plants, are much benefited by this washing, which is, moreover, highly advantageous to them, if only to remove the dust—and in the neighbourhood of large towns, or of cities, the sooty particles—with which in time they become coated, and which at this season cannot well be removed by the summary process of syringing.

FEBRUARY.

CALENDAR OF OPERATIONS FOR THE FLOWER
GARDEN, SHRUBBERY, AND GREENHOUSE.

Every fine day now does its part in promoting vegetation. The buds of all deciduous plants begin to swell; Almonds and Peach trees of the ornamental kind begin to show colour if the weather be at all mild; and all the earliest kinds of flowering shrubs indicate a speedy opening of their blooms. Lawns require mowing, and gravel walks not intended to be turned want rolling whenever they are in a fit condition; nevertheless, it is just as possible that the whole garden may be frozen solid, and drive us indoors for employment. The making of labels, the preparation of sticks and stakes for the support of tall plants and climbers, the examining of tubers and seeds, all help to find us employment; and the breaking of damaged flower-pots and crocks, and sifting them so as to produce them of different sizes, is proper and profitable work for labourers and boys; so also is the turning and mixing of different composts and manures. The planting and altering and planning not already completed must be hastened to the close at favourable opportunities, though they ought to have been done before. Pruning, also, not yet completed, should be persevered in until done. The nailing, or other-

wise fastening, climbing plants on walls, pillars, and fronts of houses, must be no longer neglected. Weeding is necessary whenever such pests appear: and great pains should be taken to destroy vermin of every kind, but more especially the moths and butterflies that may be found sporting about, although few and far between, because the destruction of a single intruder may save us the trouble of exterminating hundreds at a more advanced season, or the sacrifice of our best plants by the devouring caterpillar or the numerous kinds of grub.

Anemone and Ranunculus.—The autumn-planted will require protection with litter or covering of some kind, or in the event of severe frost they would be greatly injured; but this is the chief reason why the growers for exhibition defer planting all their best varieties until the second week in this month. Therefore, at the beginning of February put a layer of rotten cowdung at the bottom of the beds, as they are at present emptied to the depth of a foot. Let the layer be a good inch in thickness, and return the soil which has been turned out on the sides of the bed lightly into its place, and raised in the middle:

leave it to settle a few days. About the second week lay the surface level, and draw drills six inches apart the whole length, and let them be three inches deep; place the tubers of the *Ranunculus* or *Anemone* at the bottom, gently pressing them into the soil; and when all are placed draw the soil partly back again, so that the tubers may be covered to the depth of two inches, and gently press the soil down upon them. Regulate the surface of the bed so that the drills show, but that the bed be left neat and clean. In this state they may remain until they are above ground.

Annuals.—One batch of these may be sown in a hotbed, without, however, having any violent heat. Sow the different sorts in different pots, and as they germinate they may be placed where they will have more or less heat and air according to their requirements. These will be among the earliest and the principal potted annuals, such as *Phlox Drummondii*, *Rhodanthe Manglesii*, *Balsam*, *Cockscomb*, *Ice plant*, *Sensitive plant*, *Egg plant*, which are all completed in pots: it will make two seasons by sowing now, and two months hence also.

By the end of the month a first sowing of all the best annuals may be made for planting out in the borders. These are intended to be grown in pots, and kept in frames, and about May planted out almost, if not quite, in flower. All the most esteemed varieties for ornament should be thus managed, only a few of each being raised as a first crop. Each kind may be sown separately in a pot, and the young plants potted as soon as large enough to handle, three or six in a sixty-sized three-

inch pot, according to the particular habit of each. The seed-pots as well as the young plants, when first transplanted, should have a little warmth, or they will not come so forward as will be desired; but the heat must be very moderate. A temperature of 55°, maintained by means of bottom heat, is quite enough, and with this they should have abundance of air.

Auriculas should be towards the end of the month cleared of their yellow leaves, the surface of their soil stirred, and the loose thrown out, that they may be top-dressed with light rich compost, comprising one part well-decomposed poultry-dung, two parts perfectly rotted cowdung, and three parts sand; or, for want of the poultry-dung, half cowdung, and half sand. They should be well watered immediately without disturbing the top, and shut up close in the frames a whole day. Sow seed lightly in pans or pots, and cover with damp moss.

Biennials should, if they are not already in their blooming places, be removed to them in favourable weather. Wallflowers, Sweetwilliams, Canterbury Bells, Rockets, and other subjects used as ornaments on borders, should be always placed there before they make a great advance towards blooming: the autumn is far better than the spring on this account.

Bulbs in the borders are making their appearance; but it would be unsafe to fork the surface till it is certain that they all appear, otherwise those under the surface may be spoiled by the fork. Most of them will be little the worse for frost.

Carnations and *Picotees* will require to be potted in their bloom-

ing-pots by and by; therefore, if the soil is not prepared for it already, it must be mixed now. The plants at present only want the usual treatment continued.

Columbines are somewhat neglected; but they are the most elegant of all border perennials, and capable of being produced in almost endless variety, comprising all shades of blue and white, all shades of red and white, and self-colours of every shade without white. When perfectly double they are beautifully formed, and whether seen in masses at a distance, or in the hand as a cut flower, it is impossible to admire them too much. As the perennial roots of these will move well now, although there is perhaps little or no leaf above ground, let them be placed at once where they are to bloom.

Dahlias.—Put all the roots intended for propagation in suitable sized pots with ordinary soil, and place them in a hotbed, or the greenhouse or stove; but such tubers as are intended to be merely parted may be thrown into the hotbed or stove without potting, because, when the eyes have fairly started, the roots or tubers may be cut in pieces so long as there is one eye to one piece; and the warmth will expose their eyes before potting as well as after it. It is necessary to water the tubers occasionally, or they might dry up; and as soon as they show their eyes they should be cut up, with a sharp and large knife, into as many pieces as you can make with a good eye to each piece, and pot these pieces in pots as small as will take the tubers; but these may be shortened considerably to make them go into as small a sized pot as possible to

accommodate them; for, if this were not discreetly done, large pots would be required for some, and the room occupied by the pots would be greater than could be afforded. Seed may be sown in pans or wide-mouthed pots towards the end of the month, if you are anxious to be forward with any particular kinds, only you must be provided with room to accommodate them with proper protection till the middle of May.

Frame Plants.—All plants in frames without heat should have as much air as can possibly be given on mild days, the surface of the earth stirred when it seems damp or mossy, and the drainage should be examined; for in such case it will often be found clogged up by earth at the proper outlet, or the soil so completely run in among the crocks at the bottom of the pot as to choke them altogether. The plants should be cleared of dead leaves.

Geometrical Garden.—The beds in this garden should have been filled with evergreens in pots since the destruction of the autumnal flowers. For the sake of variety the beds may now be re-arranged, and different combinations of the plants effected. By the aid of two or three changes of this kind in the winter season, a set of potted evergreens may be made to impart much variety, as well as life, to the geometrical garden during the dead season of the year, when the beds cannot be filled with flowers. The different variegated evergreens are of great value for this purpose, and so are all such evergreens as carry berries through the winter—the Holly, for example, of which alone in the laurel-leaved, the saw-leaved, the common prickly, the hedgehog prickly,

the gold-edged, the silver-edged, the gold-blotched, the silver-blotched, the variegated hedgehog, the yellow-berried, the white-berried, and the red-berried, there are very distinct varieties for a dozen beds. The variety among hardy evergreens suitable for this purpose is very great; and no such garden ought to be cheerless or barren, even in the winter season.

Honeysuckle.—The Honeysuckle trained up a rod, and made to form a standard as it were, with a fall-over head, is a fine object in a shrubbery; and nothing is more simple than its training. Let it grow as it likes, one rod or twenty; fasten it round the pole with different cords every six inches, and on the top all round drive in staple nails, or eyes, to stand out two inches, and not more than two inches apart; run a wire through the outside, and fasten it. The branches having been guided as high as this may be all cut down to six inches above, and all their side branches will grow over and form a head.

Hyacinths will be above ground, and may be covered with litter, to keep the frosts from injuring the foliage and spoiling the bloom. They may be watered with liquid manure once as soon as they require watering at all; and the watering should be done in earnest, to soak the ground they are growing in. This liquid manure should be made in the proportion of nine gallons of water to a spadeful of decomposed cowdung.

Lupines of the perennial kinds should be planted where they are to flower, if this was not done in the autumn; and if there be any quantity of seed to raise plants from, half may be sown now, and

the rest at a later period. The best family is the *Lupinus polyphyllus*, of which there are many varieties; but those who pretend to grow them will always throw away everything that is not first-rate in quality, because they can be propagated from the root when they do prove good, and a variety worth the trouble may be thus perpetuated.

Mignonette.—Some pots of this favourite flower should be sown, and set on a shelf in the greenhouse, where they may be continued if required to bloom in pots; or, if intended for planting out in the borders for early blooming, they may be removed to a frame when they get four or six inches high, and kept there till planting-out time. These should be sown in five-inch pots, about a dozen seeds in each, and the young plants thinned to about half a dozen of the best when they get forward enough to show their strength. Sandy loam suits them best, though the soil is of less importance now than for autumn sowing.

Perennials generally require to be placed where they are to flower before they progress in their spring growth. All the Phloxes, Asters, and others should by rights be parted and planted in autumn; but that having gone by, they have to be the more carefully done now.

Pinks and Pansies in Beds.—Stir the earth all over the surface without disturbing the roots, and top-dress with decomposing cowdung laid half an inch thick all over the bed. Let the litter be laid over at night as usual, and removed in mild weather.

Plants for Bedding.—If you are not fully prepared with enough of these begin to propagate in earnest,

for the next three months must produce you all you require. Cuttings of Geraniums, Verbenas, Petunias, Hydrangeas, Roses of the China kind, and all other subjects used in the borders and beds in large quantities, should be taken now, and struck in gentle bottom heat under bell-glasses, wiping the glasses every morning, and attending punctually to the required moisture. With care these things will strike very rapidly, and the sooner they are potted off singly into sixty-sized pots the better. When they are once established, and are growing, you may take off the tops to strike others from, while the plants thus beheaded become stronger and more bushy. But this does not apply to the Hydrangeas, which depend for their bloom on the top strong bud, and therefore must be grown on, and shifted as soon as they fill the old pot with roots.

Polyanthuses and Primroses must be well searched for snails and slugs, which attack the tender petals the instant they protrude from the calyx, and if there be any quantity there will not be a perfect flower. Search, therefore, closely sunrise and sunset, and in dark, cloudy, damp weather, which is favourable to the wanderings of this mischievous race; and if they are at all plentiful sow some fresh lime over them occasionally, for that destroys all it touches. Stir the earth between the plants, keep them very clear from weeds, and always cut the Box edgings very close and small, to keep them from forming a harbour for vermin, which they always will be when left too thick. Sow seed in pans, and if the seed be very choice cover with damp moss till it vegetates.

Sweet Peas.—Sow a number of pots to come in for early bloom. They may be set in a hothouse or warm frame until they have germinated, then removed to a greenhouse, and finally to a cold frame, where they must be kept till it is safe to plant out, which can scarcely be before May. About a dozen seeds should be dropped into a five-inch pot.

Tulips will be generally up on the protected bed, and the earth should be carefully stirred all over the surface, and laid close up to the stems, or rather spikes, which show through. Mat or cover them still for the night, or a hard frost might considerably injure them; and when the rising spike opens, so that water could enter and lay there, they ought not to receive water at all. The patent covering ought to be placed there to prevent any fall of rain upon them until the bud has fairly risen out of the foliage. The patent waterproof calico is far better than matting, as it excludes no light, and confines the natural warmth of the earth, as well as keeps off all rain. The outer beds, which are, or rather may be, unprotected, should always be loosened on the surface as soon as the spikes are fairly through the ground.

Seeds and Seed-shops.—There is nothing so base as to deceive the cultivator with bad seeds. It may be fine sport to serve out packets of worthless things with names written on the papers, and take the money for them; but that persons in respectable shops should sell flower-seeds without knowing whether they will grow or not, or perhaps worse than that, knowing that they will not grow, is worse than the tricking of any other

trade. In other businesses we get something for our money: we may get a bad coal for a good one, stale bread for new, bad wine instead of the best; but we still have something. In the tricking of the seed trade we have nothing, and, withal, are deprived not only of our money, but of our season also. What will compensate us for the absence of Coreopsis, of our favourite dwarf Larkspur, and seven or eight other favourite annuals from our garden? Yet, believing it impossible that we could have been premeditatingly robbed, we attributed the failure of the half that we sowed early to some misfortune. Our second, therefore, was sown with better faith, and that has totally failed also. This is not all: we have had the same seed for a friend in the country as we had for ourselves, and the annoyance is ten times worse to have been made instrumental in deceiving him. French Marigold, Mignonette, Nemophila, and *Phlox Drummondii*, are the only four that came up with either of us out of twenty sorts.

THE ROSE GARDEN.

Now we come to a period of the year when there must be some activity in the Rose garden. Look well to the fastenings of pillar, arched, and wall Roses, and the stakes of standard trees, and repair all that are disordered. Go on with pruning leisurely, but according to the quantity to be done, always keeping in mind that those of the same kind pruned soonest will bloom soonest, and therefore that if two or three seasons of pruning are systematically adopted, there will be two or three different periods of bloom. This, then, may be kept in view in the pruning of

the summer Roses, such as the Cabbage, Moss, and all those which are but their month in flower. The earliest pruned will be a month earlier, the latest will be postponed by cutting them down to two eyes after all the upper ones have been shooting some time. The seedling Roses must be kept clear from weeds. The briars that are beginning to push may be grafted with some of the prunings of the better sorts, and if nicely managed will bloom the first summer in tolerable strength. In grafting the greatest care should be taken to make a close and clean fit, and not to have more than two eyes left to grow. Some only leave one, but two are not too many. Digging between the Rose trees, and clearing the ground of suckers, will be always found beneficial, and among the seedlings in beds forking will be found equally serviceable. Roses in the forcing-house should have as much air as can be given without lowering the temperature too much. Plantations may be got ready for the tender kinds of dwarf Roses by well mixing decomposed dung with the natural soil; and the plants, which of course are in pots, should be checked by taking off the tops, otherwise they become too much drawn for bed Roses. The tops may with care be struck, but they want great attention and a little bottom heat. Planting may still be done with such as have not begun to shoot yet.

THE GREENHOUSE.

The plants are now more or less rapidly approaching flower. Look generally to the state of the soil and pots, for now is a good shifting time if the work be properly managed; but the balls ought not

to be disturbed in the least, nor the fibres damaged. As the weather may prove mild the greatest allowance of air should be given. Watering should still be carefully performed, not by drenching all the pots periodically, whether they require it or not, but by examining them, and giving water to none that are sufficiently moist; for all plants ought to be occasionally nearly dry, but not quite. When they are kept long together in wet soil they are seriously damaged before they exhibit the results on their foliage or flowers.

Azaleas want but little attention beyond watering properly, and training as they are intended to bloom. Some of the varieties are very weakly and poor growers, and have to be regularly supported artificially; but we are rapidly discarding them. Among the best of the colours we have had the worst of the habits, and many sticks are required to steady the flowers; but the less artificial support they have the more highly they must be approved.

Camellias are beginning to look interesting from the number that are partially blooming, and should be brought forward prominently.

Cinerarias.—As the seedlings come into flower put marks to those that are good for anything, and let the mark or number refer to a book in which the quality of the flower and its peculiar characteristics are described. Shift the successional plants as they may require it.

Climbing Plants.—In the best adapted trellises much is to be done by constantly placing the branches and shoots on the parts of the trellis they are to occupy. When any plant is allowed to go rambling about, instead of being

trained as it goes, the fastening of the shoots is more difficult, and it is a long time recovering.

Ericas.—Heaths require air, and light, and plenty of room, and have great aversion to heat. This suggests their being placed near the openings; but Heaths are better in pits than greenhouses, unless they have houses for themselves without other plants. These will require more water than they had in winter, but they must not have it while they are still wet. Each plant, therefore, should be examined before it is watered, and if it is already wet leave it for a time; or, if more than usually wet, turn out the ball of earth to see where the draining is defective, and remedy as soon as possible.

Fuchsias require repotting, pruning, and properly shaping the plants, allowing for the growth of the young wood. To make due preparation for this the plants should be literally formed into a skeleton, the upright stem in the middle being the principal, and the spurs being cut close in at the top, and widening a little, or rather lengthening, towards the bottom; for they ought to have a pyramidal form, the branches as long at the bottom as will reach the edge of the pot, and gradually diminishing in length until at the top they are quite close into the main stem. The new wood forms the tree, and as the buds appear they must be regulated as to number and situation, because the next thing to having branches enough to form the tree is to have them in the right places.

Geraniums should be shifted, if they have filled their pots with roots, until they are in the size they are intended to flower in

and any rambling shoots that seem inclined to destroy the general uniformity should be shortened, even shorter than all the rest, that the younger shoots, caused by the check given to the main one, may fill up the space instead of the stunted end of the branches shortened.

Hard-wooded, or Botany Bay plants, which will generally be rapidly advancing towards bloom, will require careful watering. They must on no account suffer from any deficiency in the supply, or their blooms will be cast off or imperfectly developed. On the other hand, they must not be constantly wet. They should have a thorough watering when necessary, and then the soil should get almost dry before any more is applied, when it should have another thorough watering. There is some difficulty in ascertaining the actual state, whether of wetness or dryness, of the soil in a flower-pot, particularly in the case of these hard-wooded) which are fine-rooted) subjects, and are always grown in a large proportion of peat earth. The state of the surface soil is very deceptive:

a great deal depends on experience.

This is one of the great recommendations of the West Kent flower-pot for all large plants, which is made so that the mass of earth may be readily lifted up out of the pot, and examined. Tapping the sides of the pot with the knuckles becomes, by experience, a useful aid in ascertaining the wetness or dryness of the soil. There is a deadness in the sound if the soil is wet, and a kind of ring if it is dry; but it is only by large practice and experience that this test can be relied on.

Routine.—Pot off, or prick out, all struck cuttings of greenhouse plants, change the pots of those plants which have filled them with roots for pots a size larger, and stir the surface of the soil of those which do not want shifting. Keep seedlings clear of weeds, and when large enough prick them out round the edges of pots until they get to a proper size to be potted separately. Keep everything clean and dry, and if the house exhibit signs of dampness light fires, and give air at the same time: these will dry the house without hurting the plants.

MARCH.

CALENDAR OF OPERATIONS FOR THE FLOWER GARDEN, SHRUBBERY, AND GREENHOUSE.

Alpine plants may now be shifted, if not done in autumn. A soil of equal parts peat and loam, with a little sand, will suit them generally.

American plants (Rhododendrons, Azaleas, &c.) are benefited by a thorough dressing of well-decomposed cowdung. They may yet be removed with care. It is usual to plant them in peat soil, but many will do in loam. They prefer a sheltered situation, and one moderately moist.

Anemones, and especially the double ones, which are tender compared with the single, should be covered at night to prevent frost from reaching the tubers: those above ground especially should have some light open covering at night up to the middle of May.

Annuals.—Whatever annuals of the tender kind are not yet sown may be now sown on a slight hot-bed made in the ordinary way, but about two feet high, with six inches of mould on the top; on this you may place a common garden frame or hand-glasses, and sow the seeds within the space they cover. Sow the seeds in rows, which is the most convenient plan for keeping the different kinds separate. They must be protected by

glass. Hardy annuals may be sown in open borders, and, if properly covered up, will not germinate until they will stand the weather.

Antirrhinums.—Plant out seedlings of last year, or rooted cuttings. Propagate the good varieties; they will strike freely under glasses with or without heat. Seeds sown now will produce plants to flower in autumn.

Aquilegias.—Plant out early, and sow a few at the end of the month for transplanting.

Auriculas are this month showing bloom, and the slightest frost is detrimental. Keep them cool; give them air when the weather is mild. As the blooms rise watering must be attended to, and covering from frosts observed with great strictness. The effect of the frost, if it reaches them, is various: sometimes it checks the growth, sometimes cracks the petals, and always hurts the colour and crumples the flower.

Biennials.—The seeds of biennial plants may be sown towards the end of the month to bloom early next season. Transplant for flowering those sown last year.

Canterbury Bells.—Plant out if not already done. Sow a few at the end of the month.

Caraganas, and the *Cytisuses* of

dwarf prostrate habit, may now be grafted.

Carnations and *Picotees* will require the most strict attention. They must not yet be watered more than is absolutely necessary for their actual preservation. If the soil be wet the plants will be in danger from damp, for they are far more susceptible of cold, and when attacked by frost the fibres are more liable to damage; besides which, the fibres are now growing fast, and are therefore young and soft.

Chrysanthemums. — Plant out, and increase by dividing the suckers from the roots. They luxuriate in a rich soil of loam and cowdung. Plant a few against walls, terraces, or railings.

Climbers which have been protected must be uncovered gradually; they must be kept covered at night. Prune them, and tie or nail the best ripened branches.

Crocus. — Mark the best varieties, so as to know them at the time of taking up the bulbs. Keep the soil about them fresh and clean.

Dahlias. — Those which are not yet potted and set to work may be done at once. Put them in pots no larger than necessary; and, indeed, some of the tubers may be cut away, to prevent the necessity of using one too large. Here they will throw up their shoots from the collar when they are put into heat, and the cuttings must be taken off when about three pairs of leaves long. Those who have followed our previous directions by this time have cuttings well rooted. If they are in pots holding more than one, they must be placed in pots singly; and if any of them are of scarce kinds, which you are desirous of propagating, they may have their tops cut off

just below the third pair of leaves, and these tops may be struck as other cuttings. The plants will strike out shoots on both sides, which in turn may be shortened; and thus an early-struck cutting may be made the means of producing a number of plants, which is occasionally a great object, although it does not produce them so strong nor so serviceable as those of the first strike from tuber shoots. It is questionable, also, whether a plant so produced will bloom so well, although there are kinds that do not suffer from such treatment. All the cuttings, struck and not struck, should be watered daily over the foliage as well as their roots, and be shut up and shaded for a few hours. It is a very good plan to water in the evening at shutting-up time.

As those plants which are not intended to be cut down grow strong, they should be removed to a cooler frame, that they may become gradually more hardened; for, although nothing short of frost will hurt them when prepared by cooling gradually, they would suffer considerably if taken from a hotbed to the open air direct. In potting the tubers for breaking the buds to form cuttings, every appearance of decay, however slight, should be removed, even if it cause two-thirds of the roots to be cut away. Seedling tubers that are to be planted whole may be at once put into the ground four inches deep: they will not come up before the time they will bear the weather.

Evergreens may be transplanted now, but we prefer the early part of autumn.

Fuchsias. — Partially uncover those in sheltered situations, cut the shoots back to fresh buds,

and train them mostly to one leading stem. If they are much injured cut them down to the ground, and they will throw out young shoots from the roots, and thus form compact and handsome bushes.

Gentianella (*Gentiana acaulis*) may be planted for edgings to flower-borders. It does well in the shade.

Grafting.—The choice and rare ornamental trees and shrubs that are increased by these means must be attended to this month. If not already done the grafts should be cut before they begin to start.

Hyacinths and Narcissuses.—The beds outdoors require to be protected, the same as Tulip beds, with hoops and mats. Forced bulbs which have done blooming should be hardened in a cold frame, and planted out next month in a warm sunny situation, where they may perfect their foliage.

Mignonette.—Sow plenty of this in the borders when the ground is light, and also in pots for turning out.

Mimulus.—Increase by division; plant either in beds or patches.

Pansies will commence this month to bloom in the open air, and all of them begin to grow fast, unless there is frost to check them. It is well to cover them with any open litter, like peas haulm, which keeps off a good deal of frost, protects them from all the cold winds, and does not take away light. The beneficial tendency of this kind of litter to all dwarf plants through the winter and early spring months is either not half enough known, or, being known, not sufficiently practised. Those in pots, under glass should be shifted, if not done already; or, if intended to be planted out

in beds, the sooner it is done the better. If there be any shoots of choice sorts that you are desirous of propagating, and that can be spared without spoiling the appearance of the plant, they may be struck very easily under a bell-glass, and in any of the slight hot-beds that may be at work; not that heat is necessary, but that it hastens the striking, and therefore, for choice things, is better than waiting for the ordinary method, otherwise they will strike in the cold frame. It must be recollected that in all cases where bell-glasses are used the inside should be wiped dry every morning, and the compost kept moist, but not wet.

Perennials.—Many perennials require to be sown now to bloom next year. Established perennial plants may also be divided and transplanted during the early part of the month; but the sooner it is completed the better, in the absence of continued frost.

Pinks.—Put out those which have been kept in hand-glasses; plant them a foot apart in sandy loam, leaf-mould, and rotten cow-dung.

Pinus.—Protect those which are putting forth young shoots. In planting specimens drain the ground well, trench, and plant on the surface, using fresh loam to place about roots.

Primroses.—In favourite spots place a little moss about the plants, to prevent the rain from dashing the soil on to the flowers. Plant out young plants, and sow seed.

Propagate ornamental trees and shrubs of all kinds, according to their respective natures, by cuttings, layering, or grafting.

Ranunculuses, after planting, should be covered slightly with

litter, to prevent the frost penetrating the ground to the tubers; and if any of them are not yet planted they should be got in without a moment's delay, as directed last month. In very mild weather they will frequently be above ground before the end of March, and there is additional reason then for covering; but in all cases the litter should be removed in warm genial weather, to let the beds have all the advantage of sunshine: it will be unsafe, however, to leave them uncovered at night, after they are once in the ground, until the middle of May.

Seed-pans covered over with damp moss at the time of sowing should have the moss removed as the seeds germinate, to expose them gradually to the light.

Stocks.—Pot and prick out the early sowings; remove them to a cold frame when they are become established, and harden them off by airing freely. Plant out those kept in pots during winter, say at eighteen inches apart; and the richer the soil the better.

Sweet Peas.—Harden off those sown last month, and sow now in the open ground, both in patches and single rows.

Sweetwilliams.—Plant out the last year's seedlings: let them be put in masses. Sow a little seed at the end of the month.

Thrift edgings may be taken up and replanted: unless this is done every two years they are apt to get wide and unsightly.

Tigridias.—Bulbs may be planted in beds, in warm sheltered situations. Seeds may also be sown.

Tulips.—These, on coming through the ground, generally crack the surface all over the bed, for the rains will have closed the

compost at the top until the spikes break it. The whole of the surface should be stirred, and any lumps bruised, so that it may be laid even: it is of the greatest benefit to the bulbs to give them air, and of infinite service to the stems to lay the soil pretty close to them. If any vacancies occur—where the plant has not come up, while the main quantity has—it will be necessary to search carefully for the cause. Sometimes a stone or a hard lump of dirt will have turned the spike downwards or sideways for a considerable distance, and thus thrown it behind. The removal in time will relieve it, so as to make the delay of small consequence. It may be, however, that the plant is affected; the outer leaf may have begun to rot, or, as is sometimes the case, may have so completely closed over the other as to prevent its growth, and even cause it, if neglected, to decay instead of grow. The decayed part must, in such cases, be entirely removed with a sharp knife, and the plant be laid bare down to the bulb. It should then be covered a few days with a bell-glass, and as it progresses the hole filled up with fresh loam (for by no means ought the same to be returned to the place), and all the portions of the rotted leaf or leaves should be thrown away from the bed. The covering of nights, and not uncovering even in the day if there be frost, must be always observed. Should the weather be mild towards the end of the month, and there be refreshing warm rains, it will be of service to let the Tulips have them; but be doubly careful that the frost does not reach them afterwards. Tulips do not want much wet, but the foliage acquires strength by a warm shower.

In continued dry weather it is beneficial to give a gentle watering all over the foliage, but not in such quantity as to penetrate the earth much.

Violets must be kept clean. Provision should be made at the end of the month for the following season, by planting out the young rooted runners in frames upon a rich soil; keep them close, and shade them for a day or two; then air freely, and afterwards remove the sashes altogether. Another plan is now to scatter some fresh soil over the beds, in which the young runners will root, and early in autumn take them off and plant them in prepared beds or frames.

THE ROSE GARDEN.

Those who take delight in a succession of blooms should, the first week in the month, prune one-half the rough-barked Rose trees that usually bloom in June. First cut off the thin spindly branches close to where they spring from, then shorten the strong shoots according to the form you wish them to assume: the further back they are cut the stronger the shoots generally come. The proportions of tree Roses should be like those of an Oak, an Elm, or any other handsome tree; the head should be large in proportion to the height of the stem; the head should, when fully grown, be quite as large across as the stem is high from the ground to the bottom branches; therefore, in pruning, cut sparingly while the Rose is getting to its size, and, when once it has attained this, the branches that grow from season to season may be shortened to even a single eye, if desirable. It may be taken as a general rule, that the less eyes left to grow the more vigorous

the growth. Those now pruned will be rather later than if they were not pruned at all. The object of pruning half now, and half, as we shall recommend, next month, is to have two complete seasons; for next month the buds nearer the ends of the branches will have advanced considerably, and those nearest the stem will have been retarded by the growth of the others. The pruning will throw them back a month, and thus give you two complete seasons; so that with care, and pruning some back early, and others late, a very continuous bloom may be secured with the various Roses. The principal pruning required by the China and Noisette kinds is to cut out the small spindly weak shoots from all parts, and shorten the principal branches and shoots. Tall-growing Roses for pillars or walls, or fronts of houses, should have the weak shoots cut clean out, and those strong enough to bear flowers shortened, except where you want the wood. Many climbing Roses should be spurred from the bottom to the top, that is, the shoots cut in to two or three eyes, more or less, according to the space they have to occupy.

Fastenings.—Look well to the fastenings and stakes, treading the ground close about the roots, and remove all suckers and shoots of the stock.

Roses in Pots.—Roses forcing, small China Roses for bedding out, and cuttings ready to pot off, should be attended to, so as to keep them now upon the move.

Cuttings for Grafting.—At the end of the month gather all your cuttings for grafting: the fresher they are the better, and the wood must be ripe. Those you have

already got, if any, will not have been much the worse for keeping if they have been put in the ground.

Seedling Roses.—Sow seeds in large pots or pans, in good rich soil, strewing them thinly and just covering them with sifted mould. Care must be taken that the seeds, when once sown, should never be thoroughly dry, for alternations of wet and dry would destroy them. They should be set in a cold frame.

Seedlings of last year's sowing must be cleared of weeds, and, if any of them are budded, see that the stocks are freed from all shoots and buds of their own growth, as they will, if allowed to grow, greatly check the buds which are on them. If any seedlings of last year remain in the pans, and have not been planted out in pots singly, they should be potted now in size sixty, or left to plant out in the open ground in May.

THE GREENHOUSE.

Azalea Indica.—The plants will now be advancing very rapidly towards blooming. If they are merely required at the natural season they may be submitted to the general conditions of the greenhouse; but at this season, if it is required, a very little extra heat and confinement will bring on their flowers rapidly, and they may thus be had in bloom at least a month earlier than the natural season, without anything like what is termed "forcing." When the plants have reached their present stage, and the buds are progressing, it is very important that they do not by any chance become dry at the root, which would cause their bloom-buds to fall off, as well as many of the older leaves. Shift any of the blooming plants that require it as soon as their flowers are faded:

young plants not required for blooming may be shifted at once.

Botany Bay plants will many of them be in bloom, and these must be sufficiently supplied with water. Young stock plants intended for specimens should be repotted into large pots as soon as they require the additional space for their roots; and the branches of such plants should, as soon as they grow a little length, be topped, so as to form a dense bushy plant. There are but few exceptions to the necessity of thus topping young plants to form bushy specimens; but there are those subjects which naturally assume a pyramidal form of growth, as for example, *Eriostemon buxifolium*, which should not be topped at all.

Calceolarias for late blooming should be repotted now, the earlier ones having had a good shift last month. These plants are very liable to be attacked by aphides, which, unless speedily destroyed, do them irreparable injury. Support the flowering stems of any of the plants that are beginning to produce them.

Camellia Japonica.—The varieties of this splendid evergreen will now be many of them out of flower. This we think a favourable time for repotting such as need it; for Camellias, be it remembered, especially when they get into good-sized pots, stand for three or four years without suffering any injury. Young plants, of course, if vigorous and progressing favourably, may have an annual shift, which some prefer to give in the autumn; but we would rather repot them just as the flowers fade, and before the young shoots elongate. Of course, at such a juncture, it must not be rudely done, so as to damage the roots,

or the young shoots would be damaged also. Keep them rather closer, and well syringed with tepid water while the young shoots are growing, and until the embryo bloom-buds are apparent at the thickened tips of the shoots; then give more air and less water to ripen and rest them. Those not shifted should be surface-dressed with rich loamy soil, the fertilising properties of which will be washed down into the soil, and nourish the growing parts.

Chinese Primroses.—Towards the end of the month sow some seeds, to furnish a batch of early autumn-blooming plants. Get them potted singly into small pots as soon as possible, and placed in a close pit; but grow them during summer in a cool frame. Any old plants that are thought worth preserving, especially the double-flowered varieties, may be partially reduced, and repotted into smaller pots, in rather poor sandy soil, and treated as seedlings in the frames or pits.

Chrysanthemums.—A few cuttings should be put in for a supply of plants for blooming in pots.

Cinerarias.—Secure seeds of the finer varieties, either impregnated artificially, or from plants set close together with a view to its being effected by natural agencies. Any of the earliest plants that may be declining bloom should have the stems cut away, and be set in a frame where they can be kept rather close until suckers are produced. If any late plants remain unshifted they should now be potted at once.

Climbers starting into growth should be shifted into large pots, and have their permanent trellises if not already supplied. The training of them should be care-

fully attended to, from time to time, before the branches get into a confused and entangled mass. Train them on their trellises as they grow, that the face of them may be always fair; and if any are of a form to require a face all round, the plant must be turned to the light daily.

Dressing.—Stir the surface of the soil in all the pots that have indicated damp and moss, examine the drainage of any that appear more moist than others, and see that all is clear, for the wet would soon destroy a plant.

Ericas.—Large plants seldom require repotting more than once a year, and this should be done with each particular variety just at the juncture when it is ready to renew its growth. Young plants may be shifted oftener. Let all those commencing growth be repotted forthwith. These plants must never be allowed to get dry at the root. Recently-shifted plants require less water than those which have their pots very full of roots: if too much water is given to the former the soil gets sour and soddened, and in that case the roots cannot make healthy progress.

Fuchsias.—Take off cuttings of the young shoots from the old plants, if they have been started in heat. These cuttings, rooted quickly in a hotbed frame, and grown on during spring in a warm greenhouse, make the handsomest of all blooming plants for the summer. The old plants now growing freely must be repotted according to their wants. These old plants, if trained up to a single stem, make handsome standards. Start the roots of *Fuchsia fulgens* in a hotbed frame, and harden them off, after they begin growing,

to bear the temperature of the greenhouse.

Geraniums.—The great bulk of the late-blooming plants require repotting into larger pots, and they should now be placed in those in which they are to bloom. Do not pot them all at once; make two or three sets, selecting first the strongest, then the most vigorous of the remainder a week or so afterwards, and, lastly, the smallest. This will do something towards keeping up a succession of blossom; but the topping of the shoots has also a bearing on this point. After the plants are put into their blooming-pots the outer branches should be tied down towards the pot-rim, which will give the others more space. Select some large bushy plants of some of the fine varieties of Scarlet Pelargonium, and shift them into large pots of rich soil. They will be splendid objects in the course of the summer for standing out in conspicuous parts of the garden.

Heating.—Light fires in damp weather, and give air at top of the house to dry the place. Let this be done in the morning, and continued all day, apportioning the opening at the top to the temperature, which the ventilation should prevent from being materially raised, the object being to dry the house, and not to raise the heat.

Japan Lilies should now be potted for blooming in pots. Pot them so as to leave a space of three or four inches in depth for the addition of fresh soil when

they are grown up to some size. The bulbs should have no water until they commence growing.

Rhododendrons of the tender kinds going out of flower must have their young growth encouraged. Next season's bloom depends upon its being well formed and perfect.

Seedlings of soft-wooded plants, as *Calceolarias*, *Cinerarias*, *Geraniums*, &c., sown in autumn, should have their final shift now, previously to blooming. Do not put them into very large pots—at least not until they have indicated that they are of some value.

Thunbergias sown early this month in a hotbed, potted singly, and nursed on in a frame until they can bear the greenhouse temperature, make fine pot-creepers for blooming towards the end of summer. Use unctuous peaty soil.

Watering.—In watering waste as little as possible, as the frequent necessity of closing the house against frost makes the damp the principal enemy to be feared, and slopping quantities of water about unnecessarily increases the evil. Many of the hard-wooded plants will begin to swell their bloom-buds, and must have constant attention paid to the degree of moisture in their compost; for they must not have too much, and what they have should be soft, pure, and rather of a higher than a lower temperature than the house. There is a great good or a great evil administered in watering plants.

APRIL.

CALENDAR OF OPERATIONS FOR THE FLOWER
GARDEN, SHRUBBERY, AND GREENHOUSE.

Auriculas.—This is a most important month in the culture and exhibition of the Auricula; the trusses of bloom rise, perfect themselves, and fade. As soon as the truss begins to grow and develop its pips they should be reduced in number, by taking out with small pincers those least likely to be perfected; but seven being required for the exhibitions round the metropolis, and five in places where they are least particular, you must not reduce the number within one or two of what you require until the flowers are showing colour, and you can perceive which will be the most perfect. As soon as you can handle the pips to direct their places in the truss some very fine moss should be tucked between the foot-stalks, to give all the pips room alike to open; for if they are left to themselves they will be crumpled, and their shape will be spoiled by crowding each other: the moss between the stalks can be made to throw back the outer pips, and thus give room to spread the inner ones. As soon, however, as the bloom-trusses are ready for all these operations, they must be protected against the hot sun. This is best done with the transparent covering for frames; and when the flowers, from their rapid

growth and opening, want daily adjusting, it is right to find them a warm corner—at least, one sheltered from the north-east winds—and there place them on a table, with hand-glasses (propped up nearly to the edge of the pots) covering them: this is easily done with inverted flower-pots of rather a smaller size. An ordinary full-sized hand-glass will cover nine plants; but if you have plenty of room and glasses they are better not crowded. All the plants must be examined daily, and the moss between the pips so adjusted as to make allowance for the expansion of each pip without touching any other. Night and day they must be covered against extremes of heat and cold. In the daytime the transparent calico will keep off enough of the sun, and at night they must be closed with heavier material against cold; for a chill will fix the blooms and prevent their opening flat. By watching the blooms, and keeping all the pips in their places while they are growing and opening, they require nothing on the show-day but gently withdrawing the moss from between the foot-stalks under the blooms, so as not to injure the delicate powder which gives beauty to this favourite flower, and the

tips will naturally close together at the edges: a little adjustment of them in their places, so as to prevent them lapping over each other, will be necessary at the last moment. Water is to be given freely all the month, and especially to the blooming plants; while all offsets and small plants, though not so lavishly supplied, must nevertheless be kept moist.

Alpines.—Increase the supplies of water. Plant out what can be spared in romantic spots, but keep duplicates of the better sorts in pots.

Anemones.—Sow early on a loamy soil of medium texture and richness; separate the seed by mixing with silver sand; sow thin, and cover slightly, and shade if the sun is scorching.

Annuals.—Harden off and plant out those of the hardy kinds kept in frames, and sow again early. The half-hardy kinds must be shifted. Preserve some of the best to flower in pots, and put out the rest by the end of the month in a good situation; protect them by inverted pots, or fir or other boughs, from wind, cold, and sun. To keep off vermin place a ring of quicklime around them. Sow both in heat and in the open border: the slightest kind of hotbed will be sufficient.

Biennials and Perennials are sown this month or next, that they may acquire growth during the fine months. When they are large enough to handle conveniently they may be planted out in nursery-beds, to be strengthened and got ready for planting where they are to bloom before the winter sets in, autumn removal being far better than spring.

Bulbs.—As the bulbs come into flower examine them carefully, and

see that they are true. If the different sorts or colours are mixed mark them while in flower, so that the mistake may be rectified when the roots are taken up. When the ground is required for other plants the bulbs should be taken up on the first calm moist day that presents, and carefully laid in so as to ripen their foliage without being again disturbed. If this is done carefully they will not suffer very much from the change.

Carnations and Picotees.—These must be potted this month in size sixteen, or twelve, or eight pots, according as you wish to have one, two, or three plants in a pot. The compost has been already described. The mode of potting is to fill the pots one-third full of crocks, rather sunk in the middle, to form a basin; then put some soil over the crocks, about enough to make the ball of earth in which the plants are taken from their store pots stand, so that the upper surface may be level with the top of the pot. Now take the plant, with its ball of earth, out of the small pot, by tapping the edge of it wrong side downwards, with two fingers on each side of the plants, so that the ball and plants will be bottom upwards, and the surface in your hand; turn this over gently, and put in the middle of the large pot; fill up all round it with the compost, gently pressing with a small stick, so that it may be closed about the ball, but not rammed hard; give the large pot two or three taps upon the table to settle it all well together, and before leaving them give a little water. These, if potted early in the month, should be put into a sheltered situation, and by right on shelves, or stages formed of boards placed along flower-pots

turned wrong side upwards in flat pans of water, to keep off vermin, which might otherwise crawl up the stage and eat the plants. It has been said that pitch is a good thing to mix a little of with the soil. The inference is drawn from a fact which has been related, that when the sticks which are placed in the pots to train them up are dipped in pitch, the roots mat round them so much as to prevent their being withdrawn without dragging the plant or plants up with it. Charcoal has also been recommended, and a few lumps of it can do no harm; but, from the supposed operation of charcoal on vegetation, it is much more likely to be efficacious as a top-dressing.

China Asters.—The principal batch may now be sown on light rich soil under shelter: they do not require heat.

Climbers will be benefited by thinning the shoots. Regulate and tie or nail in as required: this can never be so well done, or done at all without injury, if the shoots are once allowed to get entangled.

Crocus.—At the end of the month the leaves may be tied up in knots out of the way of other plants until well ripened; meanwhile the ground can be sown or planted.

Dahlias.—Remove plants which are large enough for planting into a cool frame, and be careful no frosts nor cold winds reach them, for they are very tender. Continue taking off cuttings, and striking them in their single pots, if you have room; if not, a number of cuttings round the edge of a larger one. Take the tops off the forward plants, of which you require great numbers, and replace the decapitated plant in heat, to throw out its side-shoots.

Fuchsias.—Remove the coverings by degrees, thin out the shoots, and in most cases train them with one leading stem.

Godetia.—This fine genus of ornamental hardy annuals offers an exception to what is usual among annual plants, for they do best in poor soil, especially if it be rather light and sandy; their delicate tints and markings are brought out better under such circumstances than in rich soil.

Hollyhocks.—These fine flowers for planting among shrubs may be sown during this month for next year's flowering.

Hyacinths.—The beds of these plants should be slightly protected at night, and during heavy rain, where fine blooms are looked for, and also shaded from intense sun heat. Water the beds if the weather is dry.

Lobelias are all worthy of attention. The herbaceous perennial kinds should be separated, and potted afresh into light soil, and placed in a hotbed for a few weeks: prepare a place for them by digging and richly manuring.

Mignonette.—That kept in pots may be planted out the middle of the month to give immediate effect. Thin out the early sowings.

Pansies may now be bedded out. Plant out a batch of struck cuttings every fortnight if blooms are required for exhibition, for they go off blooming sometimes a while, and it is better to depend on several seasons of planting than on one. Plant at least six inches apart, and not more than seven in a row, across a four-foot-wide bed.

Pink beds may be yet made; but the greatest caution will be required to remove the roots whole, to avoid their losing the moisture

by exposure, and to keep them out of ground as short a time as possible. The bed should be formed of rich compost; that is to say, rich in vegetable mould, or leaf-mould as it is called, and thoroughly decomposed cowdung, which is formed into mould also by decay. The Pink always requires plenty of vegetable matter in the compost, and the more necessary does it become if removed so late. Plant six inches apart in rows across a four-foot bed.

Polyanthuses.—Treat these the same as Auriculas if they are in pots; but if in the open border, which is by far the best way of growing them, stir the mould up between them, and give a good dressing of leaf-mould and cowdung mould; take off dead leaves; guard all round the bed from slugs with some fresh lime, which will keep them away altogether; but the lime must reach all round, or they will be able to get to the plants, and they soon destroy them when there is a beginning made.

Ranunculuses.—Continue the protection of loose litter, not only at night, but in cold, raw, wintry days, of which there may be many yet.

Shrubs.—It is a late period to plant out shrubs; but if you have not already done all you want in that way, you must exercise your ingenuity to remove them as whole as you can. Many deciduous plants cannot be removed, for they are growing rapidly, and would flag past recovery for the season, if not actually die, with all the care that could be used. The exceptions are such subjects as are growing in pots, which can be removed at any time, and in any weather, by taking the precaution of soaking the whole ground around them with water;

but if they are turned out of the pot in dry weather when the earth is parched, and merely watered in, as too many do such things, the parched earth around soon absorbs it all, and the plant suffers accordingly. It is well to do all these unseasonable movings after wet weather has prevailed; but when you have not this opportunity, and do not like to wait for it, soak the ground completely all round for some distance, and follow it up by daily supply until the rain relieves you of the labour.

Stocks.—Many may be planted out, and others brought on to follow them. German Stocks sown now will bloom finely in autumn: the soil must be rich and well worked.

Sweet Scabious.—Seeds of this plant may be sown now: the plants will come in serviceable next September, when flowers are getting scarce.

Sweetwilliams.—Sow a good bed of these from the best selected seed that can be obtained.

Tender Annuals in Pots.—Balsams, Cockscombs, Egg plants, Ice plants, Tricolors, Amaranthus, and other plants usually grown into specimens, must be shifted from the pots they were first pricked into to those of a size larger as soon as the roots reach the edges, and must be continued in heat. If the first sowing has not yet been potted into single pots let it be done at once, or as soon as they are large enough.

Tulips.—Continue the greatest care of these delicate subjects, not allowing the frost on any consideration to touch the best bed, on account of the damage it does to the bloom, for the plant hardly feels the hardest frost even when it reaches the roots. Allow no weeds

to spring up among them, and protect them against high winds, although a gentle agitating breeze does not by any means hurt them. Cover at night, even if the weather be warm; but they should be uncovered by daylight if the weather permit. Gentle showers will not injure them; on the contrary, if mild it does them great service; and if the weather be dry and parching be not afraid of syringing the foliage all over. If, despite your care, the frost does catch them, syringe them all over with cold water, and let no sun reach them till they are thawed. If the earth was not stirred between all the bulbs last month it must be done directly; and if they have had much rain since it was stirred, so as to cake the surface and make it run close together, it may be gently stirred again. If any of the foliage has a spot of yellow on it, or any appearance of canker, remove the affected part with a knife; for if the whole foliage above ground be cut away there is more chance of the bulb escaping than if the canker was left on; for its increase, until the very heart of the plant and the bulb itself is rotted, is almost a certainty.

Violets.—Strew over and about the old plants with fresh soil to encourage runners, from which young plants will issue: these can be transplanted when well rooted.

Wallflowers.—Seeds of the single ones should be sown towards the end of the month for next year's blooming. A good supply of cuttings of the double ones should be got in. The varieties most worth seeking for are a double blood red, flowers very dark; a double bright yellow, brilliant colour, and with narrower leaves than any of the others; a dwarf dingy double yel-

low, called the Hornet; and a double purple, which has flowers of a peculiar purplish tint. These should be rooted under hand-glasses, and kept in pots through the winter.

Borders will by this time show all their bulbs and herbaceous plants, so that the surface may be stirred up and raked without damaging the contents; whereas, if you began before all these things were up, although labels might point out the places, they would be in great danger.

Gravel walks should be turned towards the end of the month, and rolled smooth; it gives them all the appearance of new ones; and if the gravel be too dirty or too thin a fresh coat of it will be desirable.

Lawns.—When the grass is rather thin, either scatter some rich soil mixed with some of the proper fine lawn-grass seeds, or lay fresh turf. If it is not very bad the first is the best plan; but it is best done in autumn. All lawns should be frequently rolled and swept, and mown. Much of the beauty of a lawn during the summer depends on *commencing* to mow early in the spring, and *repeating* it very frequently, say once a week.

Tie up the stems of any plants that require support. This is best done as soon as it is seen to be required, and not left, as is too often the case, until the stems are blown on one side and become crooked, in which state they can never be tied up in an orderly manner.

Verges.—The verges of beds and borders should be cut even, and of uniform width, for their growth during the winter is generally uneven, the most hardy grasses con-

tinuing to thrive through almost all weathers, while the more tender are checked through the winter.

Water the different kinds of choice flowers carefully if the weather proves dry. A good deal of their success depends on their being properly watered when the blooms are advancing.

THE ROSE GARDEN.

Grafting.—This month, even in ordinary seasons, Roses begin to grow in earnest. At the early part of it grafting should be done. The stock should begin to swell at the buds; but whether the graft has begun to swell or not is not of much consequence. The best way to join the graft to the stock is to cut a slit in the stock on one side of a bud left near the top, not near enough to damage it, and take out with a very sharp knife a piece of the form of a V, and cut the graft with a sharp edge of the form of a thick-backed knife. The graft should be of well-ripened wood; two eyes should be below the top of the stock, and one or two above. When fitted get bass matting or coarse worsted to tie it in its place; and this done, cover the whole with grafting wax so as to exclude the air. This wax should be so made as to melt at a moderate heat, and to harden in the ordinary temperature.

Budded and Grafted Roses.—Look well at the stocks of all last year's budded and grafted Roses; take off all the growth of the stock wherever there has been any, and rub off all the buds of the stock that start. The only exception to this rule is the top bud of the grafted stock, which, being there to draw the sap up past the graft, must be allowed to grow until

the graft has united; but as soon as the bud has started four inches it must be topped to check it a little, and as soon as the graft begins to grow, the growth of the stock may be stopped. Those stocks of which the buds have failed, and which are intended for budding again, should have all the side-shoots cut off, and all the stem that is above the upper growing branch.

Pruning.—If any Rose trees have been left over, according to last month's directions, for late blooming, cut them back to two eyes (or more, if the wood is wanted to fill more space). It will be found that all the buds toward the ends of the branches grow long before those close at the bottom.

Succession plants for the forcing-house must be taken in as required, and so must Roses for showing in pots; but this must be regulated according to the season at which you want them. Those who want to make the most of Roses may bloom them every month in the year.

There is a method of growing the dwarf delicate Roses in clumps which is worth trying. Plant them about nine inches apart in a well-prepared bed; get large white flints and place between them, so as to shelter them half way up, and only leaving them room to grow; and even stuff good moss here and there in the vacancies, partly for warmth, and partly because it is showy. The Roses, if well chosen, will bloom all the summer, and even a hard winter will only cut them down to the moss; they will in the spring grow as vigorously as ever. The end of this month such a bed or clump may be planted by turning

the plants out of the pots, and placing them at proper distances.

THE GREENHOUSE.

Fires will now scarcely ever be required, though, if there should be frost, it must be kept out more rigorously than ever, now that most of the plants will be advancing rapidly in growth. In the generality of years, however, no frost will occur likely to affect the plants inside, which at this season will require exposure to all the mild air they can have. Not only all the day, but at night also, to some extent, if mild, the house should be ventilated. The worst and least interesting of the plants, as well as some or all of the duplicates, should now be removed from this house to a cold frame, in order to give the better subjects more space.

Azalea Indica.—When the young shifted plants are growing freely the strongest shoots should be topped, to produce a dense bushy habit. This applies chiefly to plants in process of formation; larger ones already arrived at a blooming size seldom require this manipulation. See that the plants as yet unbloomed do not want for water. Shift such of the flowering plants as require it as they go out of flower.

Botany Bay plants, as they go out of flower, should be shifted according to their respective wants, the irregular branches pruned back so as to reduce the plants to a snug compact form, and then allowed to make new growth for next year's flowering. This new growth should be got as forward as possible, in order that it may be thoroughly ripened during summer.

Calceolarias advancing rapidly

towards flowering must have their stems supported in some way, or the weight of the flowers will cause them to lie about in all directions in a very unorderly way. There is a great objection to the innumerable stakes often used; therefore avoid using more than are essential. The best supports are very slender slips of deal, painted dull or invisible green. Be careful to destroy the aphides before the flowers begin to open.

Camellias should have a daily syringing with tepid water, and the warmest corner of the greenhouse reserved for them, until the incipient flower-buds have become "set."

Chinese Primroses.—Seedlings sown last month must now be potted singly: keep them on a warm shelf unless you can accommodate them for a week or two in a moderately warm pit. At the end of the month sow a good batch to supply plants for the next winter and spring. Watch any choice plants now in bloom for a supply of seed, which is generally formed at this season when the plants get plenty of air.

Cinerarias.—Shade the plants in blossom during very bright sunshine. Sow any seeds that have been obtained. The chances of obtaining a further supply will now be increased, as all plants seed better when they have a more perfect play of air about them, as greenhouse plants have at this season. Cut down the plants that have done blooming or have passed their prime, in order to facilitate the production of suckers, which are to be parted, potted separately into small pots, and set in a close frame as soon as they acquire sufficient size.

Ericas.—With increased light,

heat, and ventilation, there will be an increased evaporation from the soil, which would soon, if neglected, so far part with its moisture as to destroy the plants. Watering is the preventive means; and in this, as in many other cases, prevention is better than cure, if the proverb can be said to be applicable where cure is impossible. Nothing will revive a Heath that has become thoroughly dry at the root. Shift such of the plants as prepare to make new growth.

Geraniums.—The earlier plants will, during this month, begin to open their blossoms. Whatever tying up or supporting may be necessary should be done before many of the blossoms are expanded. Put in cuttings for the supply of a few late autumn and winter flowering plants. The expanded flowers will last some days longer if they are covered over to prevent the access of bees and other nectar-sipping insects. As the plants go out of flower they must be cut low down, and stood in the full sun with very little water until they break.

Fuchsias.—Let the young plants from cuttings be shifted on from one pot to another as fast as they

produce roots throughout the ball of earth: the plants should stand in the full light. They do as well in frames as in the greenhouse—perhaps better. The shoots on the old pruned stems must be thinned out where they crowd each other, and regulated so as to form a handsome plant.

Cuttings.—This is a good general season for putting in cuttings of greenhouse plants to obtain a young stock; they root better than they do in the height of summer, when the sun often overpowers them, notwithstanding any shading that may be given them.

Late-blooming Plants.—Select some healthy young bushy plants of free-flowering subjects, as *Salvias*, scarlet *Geraniums*, *Heliotropes*, *Eupatorium serotinum*, shrubby *Calceolarias*, *Leonotis leonurus*, *Neja gracilis*, &c., and grow them on during summer in a cold frame with plenty of air, removing all the blooming shoots produced up to September, or as late as may be desired: they should be shifted as often as they need it. Such plants, if allowed to grow on in autumn, will come into flower at that season, and prove highly useful for the decoration of the greenhouse.

M A Y.

CALENDAR OF OPERATIONS FOR THE FLOWER GARDEN, SHRUBBERY, AND GREENHOUSE.

Anemones.—The autumn-planted ones in a forward state require nothing but watering, seedling beds to be kept clear of weeds, and any that may be in flower to be marked or rejected. Seed may be sown in a rich open bed.

Antirrhinums.—These should be hoed between the rows in the open ground, and those in pots shifted to others the size they are to bloom in. We speak of the fancy varieties grown in collections.

Annuals.—A second sowing may be got in, in the beds and borders of those which were sown in heat for planting out and potting, such as *Nemophila*, *China Aster*, *Stocks*, *Mignonette*, *Phlox Drummondii*, and *French Marigold*. Those ready for planting out should be got in after rain. They will bloom much earlier than those sown now, which will succeed them in flowering.

Auriculas.—As the blooms of these decline let them be placed on a hard bottom, and have all the weather, in a situation shaded from the mid-day sun. If you do not want the seed pick off the pods, but do not shorten the stem. Those who have the convenience should place them in frames, where they may be allowed all the genial

rains, and yet can be shaded, and, if necessary, covered from an excess of wet.

Biennials.—Wallflowers, Sweet-williams, Canterbury Bells, and two-year Stocks, and all biennials, may be sown this month.

Balsams.—Shift these into larger pots as they fill the old ones with roots. Keep them in a hotbed near the glass. At the end of the month you may plant out any number in the common border.

Campanula.—The fine chimney Campanulas should be now shifted into their largest or blooming-pots in rich soil, and be allowed to grow in the open air. As the shoots rise regulate the number you want, and cut the others down. Put in the frames or stakes to which they are to be trained.

Carnations and Picotees should be well watered, and traps set to catch earwigs and other vermin. They ought to be placed on a stage, or on shelves so constructed as that the legs or supports may stand in dishes of water. The stakes should be placed in their pots if not done already. It is a bad plan to neglect this too long, as it may damage the fibres when they once begin to spread abroad in the pot.

Chrysanthemums.—These may

be struck now as well as in the next three months, but the later they are taken from the tops of well-grown plants the better. Those struck now may be grown until July, when their tops may be struck again, and form very dwarf plants, while the stems of those they are taken from may be converted to fine bushy ones. They will strike freely now under a hand-glass in the common border, or in pots under a bell-glass.

Climbing plants on walls should be fastened as they grow, particularly weakly subjects like Clematis, which break with the wind if left hanging about. They ought never to be neglected two days, for they are worse for it.

Cockscombs.—Let them grow without watering until they are starved into the premature showing of their blooms, when the roundest and fullest are to be selected, and potted singly into sixty-sized pots, put into a hot-bed in good condition, kept near the glass with plenty of water and heat, and as they fill the pots changed to larger ones, constantly kept up to the glass, with unimpaired heat.

Crocuses.—As soon as the grass of those bulbs that are to remain in the ground turns yellow it may be cut even with the ground. All that are wanted up may be had up, and kept, with their names, dry and cool.

Crown Imperial.—As soon as the foliage fades into yellow cut them down to the ground, or dig them up; but such soft bulbs should never be long out of ground.

Dahlias.—Take off cuttings, and strike them one in a pot. There is nothing so good for this as a common dung-bed; but the propa-

gating house is available. Until you plant out, those which are struck should be put into cold frames, not to be subject to the weather, but to be gradually inured to out-of-door treatment till the middle of the month, when they may be planted out where they are to bloom. Let the stakes be first driven down where they are to remain, then dig holes at the stakes, and put in the plants; then use the pots they are taken out of to put on the stakes, with a little moss inside to form a trap for earwigs, and examine them daily from the first. Dahlias want six feet of room, though they often get but four.

Evergreens of the better kind, and especially specimens, should be examined, and where there are branches growing out of form take the tops off, or shorten the branches still more than that; take away very weak shoots also, and give air, light, and sun, by removing wood when it is too crowded.

Gladiolus merely require to be kept clear of weeds, the earth loosened a little, and watered in very dry weather.

Hyacinths.—If the foliage has turned yellow take them up carefully, dry them properly, remove the offsets for early planting. While the large bulbs are for disposal in the best beds at the proper season, some of the late ones will not perhaps be ready till next month: shade these from the sun to prolong the bloom.

Hollyhocks.—If these are in exposed situations they will require stakes like the Dahlia, but if well sheltered they will need no support.

Iris.—The perennial Irises in all their variety (we mean those with tuberous roots) should be

kept clear of weeds, and the earth loosened round their patches; the bulbous kinds should have their beds watered if the weather be very dry, and be shaded when they show colour.

Lily.—The large-flowering sorts in pots should be sheltered. Although not tender, they would suffer from wind and rain; but their proper place is the cold pit. The hardy sorts in the borders require no care whatever. Seedlings of all kinds should be kept clean.

Lupinus polyphyllus.—There is scarcely a family more numerous than the Lupine, from *Lupinus nanus* to *Lupinus Cruikshankii*. They are of all sizes and colours, but the most superb is *Lupinus polyphyllus*, which has a splendid spike, and is worthy of all praise; nor is it the less acceptable on account of the many shades of colour which distinguish it from more common ones, nor for being a very hardy perennial. We consider it so necessary an appendage to the border, that we recommend sowing a few seeds for the sake of possessing whatever new varieties may come, and enabling you to throw away any that are worse than the original.

Mimulus seed may be sown the first of the month in clumps at the foot of trees, or in beds allotted to it, where they may flower without any care or trouble. They are very brilliant when in bloom. Plant out those sown early in pots—they will be a month earlier in flower.

Peony.—These plants are for the most part showing their bloom. Some of the varieties want support; others grow down to the ground, and provide the support for themselves. There is hardly a more striking plant than a

Peony in full bloom. The Tree Peony is not so good in the flower as some of the herbaceous kinds, but it is a noble plant notwithstanding.

Pansy.—Now in perfection. Shade particular flowers, but not whole beds. Take off cuttings, or, which is better, side-shoots, and strike them under hand-glasses in the common border.

Paths.—The first part of the month pick up and turn all gravel walks. Begin this by chopping up all the weeds and clearing the surface, then with a common pick loosen the gravel from end to end, with a spade turn the clean side to the top, and the dirty side to the bottom; and, if the walk be too thinly gravelled to do this, take the rake to it after it is loosened, and merely freshen it up a little. Let it be well rolled afterwards, and keep it rolled after rains, as indeed all gravel walks should be, whether disturbed or not.

Petunias.—If a collection of these are grown, and you have among them any of those weakly varieties which will not support themselves, you must resort to sticks. It is a most untidy flower, and is almost a trellis plant: nor is it long pretty even as a border flower, though it keeps in bloom a considerable time. Now is the period the weakly ones require sticks, and those which are to be turned out in the borders require topping. Those in pots should be trained after some fashion, or they will hang over their pots, and be hardly endurable. The plain varieties are hardly worth growing; but there are some which, from their habits, which are shrubby, and others for their colours, which are curiously striped or spotted, may be grown for pots. All those

plants whose pots are filled with roots must be shifted, and the soil may be the same as for Fuchsias. Those to be turned out need no shifting, because by the end of the month they may be planted out.

Phlox.—All the perennial kinds merely want looking to, with a view of providing sticks for the tall ones as they grow up. The *Phlox Drummondii*, which, strictly speaking, is an annual, may be perpetuated by constantly making cuttings. Those saved through the winter may be planted out in the borders, or be potted to bloom that way. The difficulty of obtaining seed to be depended on renders it desirable to treat this plant as a perennial. Taking cuttings from it several times, and depending only upon them, enables the cultivator to choose his own plants from the first lot of seedlings he grows. We recommend seed to be sown and saved from the best every year, but cuttings to be taken from all that are remarkably good, until a sufficient number of varieties are secured of the better kind. This may be sown at once in the open border.

Pinks.—By the end of the month you may reduce the flower-stems to one on each plant. Top-dress, if not done already, with decomposed cowdung. Water in dry weather. Keep clear of weeds.

Polyanthus.—Part them carefully, so that a heart may have a piece of root, and plant out in good strong loamy soil, and in a situation not reached by the mid-day sun. Sow seed in large pots, and keep it in frames.

Primroses.—The double white, double crimson, and purple, having now passed their flowering, let them be parted like the *Polyanthus*, every heart with a bit of good

root to it, and be planted out six inches apart, to grow into strength again.

Ranunculus.—Stir the earth between the rows; water effectually when you water at all. The autumn planted now in bloom may require watering and shading too, to preserve their colours and prolong the flowering.

Rhododendrons.—Those which have been protected are for the most part in bloom, or have passed their flowering. The bunches of decayed flower and seed-pods should be removed instantly, for the swelling of the seed-pods detracts greatly from the growth; so much so, that it is a very common thing for the plants left with their seed on to fail altogether to produce bloom for the next year. Therefore, as soon as the bloom has begun to fade, take off the bunch of seed-pods, and continue this. If there be any disposition to grow out of form, prune in a very long branch before the growth begins; but those plants which have been unprotected have not bloomed yet.

Scarlet Lychnis.—This is one of the most brilliant, perhaps, of the perennials. A tall plant, three feet and upwards, with a head of fiery scarlet flowers, grown in masses, could not be surpassed easily by anything else we have in the garden. Loosen the earth round the plants, and provide some kind of support. Generally three moderate sticks, about eighteen inches high, placed at angles, and a piece of bass matting, will be sufficient to hold a mass of six to a dozen shoots; but a patch ought not to be allowed to get so large, except where the borders are very wide.

Shrubberies and Lawns.—Mow

not less than once a week if it can be done, but if it goes more than a fortnight this month the grass will be spoiled for the year. Water late-planted shrubs.

Transplanting all the annuals, potting of such as are to be bloomed in pots, filling up the beds and clumps with Hydrangeas, scarlet Geraniums, Fuchsias, Verbenas, Petunias, Calceolarias, and other subjects which have been protected all the winter, may be set about after the fifteenth of the month without fear of having them damaged by frosts.

Tulips are now coming into flower. Keep the sun from once shining on them after they show colour. Make memorandums in your book on the state of your blooms, especially pointing out any that are to be changed the next planting, and all such as are in their wrong places. If the weather be exceedingly sultry water the paths in the Tulip house, but not the soil in which the Tulips are planted. They do not require wet, but the paths well watered. Keep the canvas house cool, and when the weather shall prove very melting syringing the canvas all over so as to still more cool the place will be beneficial; but the under cloth stretched from end to end must be put up before you sprinkle the roof, or the water would splash through the cloth into the flowers, and completely spoil the bloom. Look over all your seedlings as they flower, that you may throw away at once all those which prove worthless, and so lessen the stock. Shade any particular flowers that may be about in the out-beds and seedling beds.

The borders generally have to be kept clear from weeds, to be

filled in the vacant places with seeds or plants ready to put out. Stakes put to all sorts of plants that are weakly in their stems, or too tall to stand the winds. In filling up the borders all the taller subjects should be placed at the back, and the lower ones towards the front, as all borders should form a kind of bank of flowers when all are in flower.

Geometrical or Dutch Gardens.

—One of the first things to consider in Dutch gardens is permanency of bloom. On this account there are many kinds of dwarf Roses that are excellent, but all the beds should be uniform; that is to say, the beds that are all of one shape should be all of one colour, or half of them at any rate. Suppose, then, there are six round beds on the same circle; it would be tolerable to have three scarlet and three blue, they being alternate, and so with all the rest. Of the annuals to be employed, *Nemophila insignis* and *Convolvulus minor* would be splendid blues; *Zinnia coccinea* and scarlet Ten-week Stocks, good reds; *Erysimum Perofskianum* and *Eschscholtzia crocea*, good orange colours; Candytuft, a good white. But the objection to annuals is their short-lived beauty. Verbenas of various colours, and Roses, go a long way towards making up beds that retain their beauty all the summer and a great part of the autumn. All we want to impress on the mind is the necessity of uniformity in the plants employed. The *Cuphea platycentra* is also a prize for bedding out.

THE ROSE GARDEN.

This noble plant is now advancing in growth, and approaching the period of bloom. Syringing

with a strong but fine stream, through small holes, all that may be attacked with the green fly, and especially those on walls and the fronts of houses, will be found beneficial. Look over the grafted and budded trees of last year, and remove all growths of the stock, whether suckers from the root, or shoots from above and below the graft or bud: the only exceptions are those of which the graft or bud has failed, and in such cases let the strongest shoot of the stock alone grow to be budded again. Roses in pots must be examined to see if they have enough room. Observe that the moss is not removed from the pots of seed not yet up, and that the moss is damp and the soil moist.

THE GREENHOUSE.

Azalea Indica should now be kept in the shade, and if there be no permanent shade to the greenhouse a temporary one should be placed in some portion of it. No plant sooner yields to the influence of the burning sun, nor exhibits signs of distress so rapidly if neglected. All the kinds are alike in this respect; they should, therefore, be carefully watered, have plenty of air, and be kept out of the sun in the coolest part of the greenhouse.

Botany Bay plants, by which we mean *Acacias*, *Hoveas*, and all hard-wooded plants of the same nature, though from other localities, have bloomed, or are about blooming. Such as have flowered are beginning to make their growth, and now is the time to prune all such, before they advance too far. Where the branches are luxuriant and growing out of shape they must be shortened. All that

are too long among the lateral shoots must be cut in, so as to favour handsome growth, and in pruning them we ought to consider that the object of a little height or size is nothing compared with good form; hence, if they are gawky and bare, we should sacrifice a good deal of the present size, that we may ultimately improve the form of the plant. We ought also to examine them before we leave them to their growth, to see that they have good drainage and pot room, and if not, we ought to repot them in pots a size larger. When all this is done let them be placed in the coolest and lightest part of the greenhouse, and be turned round every day, otherwise they will grow one-sided. Let them be freely watered. These plants should always be grown in peat mould two-thirds, and loam from rotted turves one-third, and without dung. Those plants which have not bloomed must be well supplied with water, as a plant coming into flower absorbs a good deal. All growing plants require plenty of light, plenty of air, plenty of water; and if the sun be very burning, which it frequently is this month, let there be a shade during two or three of the hottest hours of the day.

Calceolarias. — These require a good deal of water as they rise for bloom, and to prevent their being drawn up too much, so as to weaken their stems, they must have plenty of light and air. Observe, too, that the drainage of all is clear, which may be easily seen if you examine before watering. If any one is moist at that time, while the others are dry, turn out the ball, and put new crocks into the bottom, removing all the old ones.

Camellia Japonica.—These are now making their growth, and should be examined to see that they are not rambling out of shape. The pruning of the *Camellia* is a subject on which few growers for sale agree with us. They should, however, be as carefully pruned as a wall tree. Shoots coming in places where they are not wanted ought to be taken off; branches that are too long should be cut back. Regard should be had to beauty, and not to size. The grower for beauty does not care for wood except where it is wanted, and therefore the instant the bloom is gone he should cut the plant into a form that will, with one year's wood on it, become handsome; and, though he may lose half the plant by the operation, he will be pleased with the result, however great the sacrifice may be. They will grow the better if placed near the light, being shaded, while the young wood is tender, during the hottest hours of the day, if the sun be too powerful; and they should not on any account suffer a check while growing. Many place them in the stove or a warm greenhouse, but they are infinitely better without artificial heat. They should be turned every two or three days to prevent their growing one-sided.

Chinese Primroses.—We are not sufficiently interested in the single kinds to think them worth growing from seed; but there are some worth perpetuating, such as the double ones and remarkably large single ones. Shake the earth all out of the roots, separate the hearts so as to get a good root with each, and pot them in the sized pot best adapted for their roots, without regard to the head, which will soon spread.

Cinerarias.—These are now in

perfection, except seedlings, many of which bloom later. They require plenty of air and water, and their flowers may be shaded from the hot sun. Seedlings in smaller pots than they are to bloom in should be shifted when the pots are full of roots, and be well watered. They will grow double the size that they would acquire if starved, and you can hardly judge a flower that has been starved.

Climbing Plants.—The rapid growth of climbers renders constant attention necessary. The principal object is to guide the young shoots daily, and fasten them in their places as they advance, for, if this be not done, the leaves all turn according to the position in which the growing shoots hang or lay; and when, after they have been neglected, you begin to train them, the leaves are twisted out of their places, and the plant requires a long time to recover a good appearance. The necessity of constant watching will be observed the very first time they are neglected a few days in their growing season. Those which are meant to cover any given space should be occasionally stopped when more lateral branches are required.

Erica.—This beautiful family should always occupy the coldest place in the greenhouse or a cold pit. All artificial heat is injurious. Twenty-four hours' neglect of watering after they want it will either quite kill or greatly damage a plant, because the leaves of the lower part would fall as if they were deciduous, or whole limbs would die back. Examine every plant, therefore, daily, give plenty of air, and carefully observe the drainage: too much water would be just as dangerous, just as mis-

chievous. The changing of pots to larger sizes should take place after bloom, and before the new growth. The soil should be two-thirds turfy peat, and the other third of loam from rotted turves (which is half vegetable manure), or made up by maiden loam which has no manure, and decomposed horse or cowdung to make up for the absence of it. The proper peat earth is that which is very full of sand. Too much attention cannot be paid to the watering and giving plenty of air. The Heath luxuriates in a good warm wind.

Fuchsias. — According to our mode of culture these plants will be now in full growth, requiring only plenty of air, plenty of water, and turning every day to make the growth uniform all round. Avoid all artificial heat, keep them as cool as any part of the greenhouse can be kept, and if the pots are full of roots change them for a size larger. If there be a disposition to make long shoots, stop them by pinching off the ends; but if you have neglected this till they have gone too long, cut them actually back a joint or two. Those of pendulous habits, like the old *Globosa*, should be stopped early, until there are enough branches to hang over all round. Pyramidal

plants of more than a year old should be checked wherever the lateral branches get out of place. Cuttings may be taken at any time of the year, and seed may be sown now in pans or pots, and placed in the warmest part of the house till they germinate. Seedlings that have filled their pots with roots may be placed in others of larger size: the soil best adapted for them is peat earth and loam from rotten turves, half of each, without manure.

Geraniums. — These are now showing their blooms or bloom-buds, and, as the flowers will easily burn in the very hot bright sun, shading is indispensable, but it should be done only while the sun shines. It should be so contrived as to be easily removed and replaced. A shade on a roller, that can be pulled down or up inside the glass, without preventing the glasses from being opened, is the best, because the full air can be given without difficulty. The *Geranium* is too often drawn up by heat without light, whereas the light without heat is every way efficacious. They will require great watchfulness as to supplying water, and in killing the green fly by fumigation the instant it appears. They should be placed as near the glass as possible.

JUNE.

 CALENDAR OF OPERATIONS FOR THE FLOWER
 GARDEN, SHRUBBERY, AND GREENHOUSE.

Anemones, where the leaves have turned a little yellow, may be taken up, dried, and stored like *Ranunculuses*, except that, as the tubers are larger and held more moisture, you will require a longer time to dry them. Those in bloom may be shaded, to prolong the flowering.

Annual flowers that have been sown in the border in patches require regulating; that is, they want thinning out so as to leave only three or four plants of some large kinds, and half a dozen small kinds in a patch, because, if they are too thick, they injure each other, and the plants grow straggling and weak. *Annuals* that require planting out should be put out early this month if not done last month; and in the middle or towards the end of the month, as a succession to those already in. Last month and this may be greatly assimilated on these matters, because by following up the same operations the bloom of *annuals* is greatly prolonged.

Auriculas, which are now enjoying all the weather, must be looked to now and then, to see that the drainage is quite clear, for the soil will frequently wash down and fill up the hole. They

must always be cleared immediately. Pick off all yellow leaves, earth up those which have offsets, so that the base of the offset may be in the ground or soil, as offsets are much safer and make plants sooner if they strike root before they are taken off. Seedling *Auriculas* may be potted off singly in small pots as soon as they have six good leaves; but they are better in frames than altogether exposed at first, because their moisture can be better regulated, and their shading can be adapted to their state of strength. Smaller seedlings may be pricked out from the seed-pans, and put six or more in a pot of the smallest size, or in a pan an inch apart all over; but those which touch the edge of a pot always advance faster than those in the middle, so that most prefer to put only as many as can be put round the edge. Watch the seed-pods of all that are being grown for seed: they must be gathered before they open, or the seed will be lost.

Balsams require the same treatment as before; but as they grow up tall they must be sunk lower in the bed. If properly provided for they should go into a warm pit, where they can have plenty of light and heat, and be easily got

at to shift from one sized pot to another. Balsams may be planted out in the common borders: they look best put out three in a patch, because, as they are of different colours, they form a better contrast. They will be a good succession to any planted out before; or, if they have been advanced much in pots, they will very likely flower before them, but at any rate will form two seasons.

Cockscombs.—Shift from small pots to larger ones every time the smaller ones fill with roots, and keep up the heat of the hotbed by means of fresh linings, keeping the soil moist and the plants near the glass, for they will depend more upon the continuance of heat and proper moisture for their beauty and fine growth than any one imagines, unless he has grown them.

Cuttings.—Before any of the plants intended for bedding out are planted all the long gawky shoots and all spare pieces should be taken off; first, that the plants put out should be pretty uniform; secondly, that the cuttings may be struck for late planting. At this time of year they may be put in the common border in the shade, under a hand-glass, and they will strike freely. All rooted cuttings in pans or pots should be potted off into single pots.

Dahlias.—The further planting of Dahlias should be completed this month. Many plant the middle of May, the first week in June, and the last week: that is for the sake of having three distinct seasons to calculate on for the exhibitions. Fasten them rather loosely to the stakes, and above all things examine frequently the tops for earwigs, and destroy them as fast

as you can. If you persevere in this matter you will have cleared them by the time that other people begin to catch them; for, strange as it may seem, the growers generally do not trouble their heads about earwigs until they have had all the season to breed in, and the flowers are about to appear. Hardly any amount of assiduity is equal to their destruction, unless begun from the instant they are planted out. Be in no hurry to commence watering the Dahlias. When they are planted soak the whole ground well, but let them seek their own by going down after it before you water again, unless the soil is very light and not very rich, in which case you must supply water as a substitute—but a poor one—for the nourishment the ground ought to contain in itself. They will, in all probability, be attacked by the green fly, and perhaps by a little green caterpillar or grub. For the first syringe pretty sharply with a fine rose, but considerable force, and thus wash them off; but if this does not clear them in one or two syringings, let it be done with tobacco water one day, and clear water afterwards. For the grub there is no remedy but examining the plants and picking them off.

Hyacinths, Tulips, and other bulbs which have done flowering, and the foliage of which has begun to turn yellow and decay, should be taken up, and, after drying in the shade, cleared of their roots and leaves, and packed away where the air can get at them, but no sun nor damp. At the end of the month the best Tulip-bed may have begun to show symptoms of decay: as soon as the top of the stem shrivels they may be taken

up, and the stems cut off, but not cleared of their mould. They may be laid in their boxes dirty as they are, to be cleaned after they have thoroughly dried in the shade. Those in the out-beds may also be taken up as soon as their stems turn yellow at top; but all those which have seed-pods will not have begun to decay, and when seed is wanted they must be left until the pods swell the full size, and begin to turn brown.

Pansies.—Shade the individual blooms that are wanted from the heat of the sun, but the bed must not be confined, for it would draw the plants; or, if the bed must be shaded, let it be by a side wall of matting, and not a complete cover. Take off the small side-shoots from all the plants you wish to propagate, and constantly set them to strike. New beds ought to be made two or three times a year, besides the original autumn-made ones. The side-shoots strike rapidly under a hand-glass even in the common border, and a trifle of bottom heat will hasten the striking. You may make another bed of struck cuttings any time this month, and those plants that have bloomed and declined may be cut down to break out anew, or be pulled to pieces to propagate generally.

Perennials and Biennials.—If they are large enough to plant out towards the end of the month, let them be turned out about as distant from each other as the plants occupy when grown. Canterbury Bells, Wallflowers, Sweetwilliams, Columbines, Lupines, and such-like, may be nine inches; Polyanthuses and such-like close-growing subjects may be six inches. Let them be in beds about four

feet wide, and alleys between of one foot.

Picotees and Carnations require the greatest attention, not less to their general health than their freedom from vermin. If there be the least symptoms of the green fly they should be fumigated, if you have a room to shut them in; and if not, they should be washed and syringed, first with tobacco water and next with clear water; for, if once the green fly prevails, the plants will be weakened and the bloom greatly impaired. As their stems rise they should be tied to the stakes, but sufficiently loose to allow them to grow. They will frequently lengthen so much that, if the tie stops them above, the stem will grow out and break: the early ties ought to slip up the stakes readily, as the stems lengthen. Of course, if there be more than one stem to a plant, the weaker is to be removed. Only one stem should be left, and not more than two or three buds on the stem, unless it be on some of the very large and full kinds, which would grow too strong if limited in number.

Pinks are now rapidly sending up their bloom-stems, and although many persons will leave on more than one stem to a plant, we cannot recommend it. There are some large Pinks that will be more tractable if they are allowed to retain all their buds, because their great fault is being too double and too large; but these are the exceptions, and are soon found out. In a general way, reduce the buds to two or three. The tying of the buds round the middle with a bit of bass matting must be managed when the bud has grown as large as it will swell before bursting, because the con-

finement then damages nothing: the calyx is to be torn down to the tie all round the bud at each division. In blooming the Pink the guard-leaves should be guided down to their places—not pulled out, but merely drawn down so as to form a dish, as it were, for the other petals. They must be handled very lightly, for they easily bruise; and when once damaged, however slightly, they do not recover again. Many florists use a piece of round card, which they put on, and bring up to the under part of the flower, to keep up the guard or under petals, and they put a glass over the flower, and a shade on the glass, in the heat of the summer days, for it is necessary to keep out the heat from the flower. The grass at the bottom of the Pink may be thinned off, and the pieces struck, or piped, as it is called; they are to be cut up to a joint, the bottom leaves taken away full an inch high up the stem; the leaves are not to be shortened. Now make up a bed of rich light soil, and saturate it with water, putting the pipings in within an inch of each other, in a square place that a hand-glass will just cover, and having given a little water to settle the earth about the stems, cover them up: they will require no other attendance till they strike, unless it be a little water if the earth gets too dry.

Ranunculuses for exhibition must now be shaded and well watered; but to be effective the shading should be at a distance. Upright poles or stakes, and a mat well so placed as to shade the flowers effectually, all but an hour in the morning, and as much evening sun, is the best way of doing it without drawing the

flowers or making them weakly. The colours are injured by covering. They want the light and air as free as they can be given without sun. The autumn-planted *Ranunculuses*, which have begun to turn yellow, should be taken up. They frequently suffer from vermin when left in the ground too long. We have no business to wait till the foliage decays; when it begins to turn yellow the plant has done all it can, and the sooner the tubers are up and dried in the shade the better. They should be placed to dry under cover, where there is plenty of air, but no sun, and when thoroughly dry put away in a very dry place, where they can be easily examined now and then, to see that they do not acquire any damp.

Seed-pods.—If these are to be saved, let them be watched and gathered as they approach the ripening season; but if seed be not wanted every decaying flower should be removed before the seed-pods swell, for nothing so completely destroys the flowers of anything as allowing the pods of seed to swell instead of removing them. Let one patch of Sweet Peas be allowed to bloom, and not a flower to be cut, and let another have every flower cut off the instant it begins to fade; and those which are allowed to seed will be completely out of flower and full of the seed-pods, while the other continues to grow and bloom for weeks afterwards. It is the same with all flowers.

Tender Plants.—Finish planting out all the ordinary tender border flowers, and also Geraniums, Heliotropes, Verbenas, and Hydrangeas. Balsams should be planted out three in a patch, within six

inches of each other, in a sort of triangle; they will grow into one another, and, being different, have a good effect. Geraniums should be planted singly, turning the balls out whole, and allowing room to grow. The Geraniums planted out in beds and clumps should be a foot apart, for they will grow close enough very soon. All this planting should be done the first week.

Watering is frequently necessary this month, but it ought only to be resorted to in the greatest emergency. Unless things are perceptibly suffering for want of it, it ought not to be given: it is the beginning of bad habits. Plants, like people, may be spoiled: help them, and they will not help themselves; teach them self-reliance, and they make shift without assistance. If we begin watering plants the roots no longer go down after moisture—they come up after it, and we are obliged to continue it; but if we are obliged to water, let the whole space of the ground be watered alike, the same as a heavy shower of rain would do it. Common surface watering is worse than none. The farce of sprinkling ground that it may look black and wet for an hour is amusing enough to those who know better; but, as we have always said, a thorough good watering once a week is far better than the common sprinkling of the place once a day.

Weeding.—Unless the greatest activity is observed now in the removal of weeds they will rapidly overrun the flowers, and seed before you are aware of it. Make a rule of stirring the entire surface of the borders in dry weather once a week at the least; it is the only way to keep weeds effectually

under control. Weeds that grow up in patches of seed should be drawn out by the hand; but before that is attempted the ground should be well soaked with water, that they may not only draw easy, but come out without dragging the plants with them. The beds of seedling biennials must be carefully gone over, and should be thinned a little as well as weeded. For this purpose water them well first; merely remove those which are too thick to grow well enough to plant out, for if they are too thick in the seed-bed they become lanky and weak, and there is no making them into good bush plants.

THE ROSE GARDEN.

Look over all the Tree Roses, and all others worked upon briars, and, wherever the stock has begun to shoot, rub off the buds and shoots, that they may not rob the better variety that is budded or grafted upon them. Cut away all the stock above the inserted buds. If the bud has made a good shoot pinch the end off, that the growth may at once be thrown into lateral shoots, instead of all going into a branch that must be cut back to two eyes next season. It is far better to direct the strength into lateral branches that will at once form a good head, because each of the strongest of these branches, being cut back at the pruning time, will help to form a good head by sending out two stronger shoots. Look also to suckers that spread in the ground, and if they throw up strong shoots to injure the plant, dig down to the part where these suckers join the main root, and cut them off there. If any of the briars worked last year do not grow well, or rather if the buds

or grafts are not growing, let the stock grow, that you may have the branches, for the sake of budding them again in July. Examine the shoots of the Rose, to see if there be any grubs, for they must be picked off; and if there be any symptoms of the aphis or green fly, syringe with tobacco water first, and a few hours after with clear water to wash off the tobacco. The dwarf Roses growing on their own roots, that is to say, those which have not been worked, but grown from layers or cuttings, are equally susceptible of attack from grub and fly, and must not be neglected on any account. In the beds and clumps of dwarf Roses it may be necessary to stir the earth between the plants, and to peg down the branches, that they may spread and cover the beds.

Budding.—Towards the end of the month circumstances may occur that make it desirable to bud a few; for instance, you may get a few buds that you might not be able to get afterwards. In this case select the strongest shoots on the best stocks. Shave off the bud and leaf, with a little thin slice of the wood and bark, with a fine-pointed knife; lift out the woody part of the slice, which will leave the bark only on the buds; then make a slit an inch long in the bark of the stock, as close to the stem of the stock as you can well get at it, and then a cross slit half way, so that with the thin handle of the budding-knife, or a thin piece of wood, you can lift the bark by tucking it under, so as to tuck the piece of bark which has the bud on it under the bark of the stock, and tie it there with a piece of worsted or bass matting, where it may remain. Cut away some of the branch of the stock, but not

all, because you want some growth to draw the sap.

Climbing Roses.—It will be necessary to pay the same attention to these in respect to vermin; but the syringe must be the principal dependence for eradicating them, and from day to day it may be desirable to wash them with considerable force. As the fly and grub are washed to the ground it will be requisite to rake the surface, and clear them away, that they may not again climb the plants. If the shoots come too thick, or the plants are making fresh growth from the bottom, the most vigorous shoots must be removed, that the strength may go into the established plant, unless it happen, as it will sometimes, that the old plant is unhealthy, in which case new and vigorous shoots from the bottom may be encouraged, and parts of the old plant cut away to make room for them.

Seedling Roses must be weeded and kept clean, especially the smaller plants, which would soon be overrun and damaged, if not destroyed. The pans of seedlings coming forward, but small, must be also kept clean; and if they are too thick they may be carefully thinned, and the plants withdrawn may be pricked out into other pans or pots, two inches apart; but unless these be carefully drawn without injuring the roots they will not recover the change. They must be placed in the shade in a cold frame, or out of doors.

Stocks for Budding.—These must be looked over, and all but the two or three strong shoots near the top continually rubbed off as they appear, because the more strength there is thrown into the shoots that are to be

worked the easier they will be worked.

THE GREENHOUSE.

Azalea Indica and Camellias.—

The plants of *Camellia* and *Azalea* are making great advances. If all these plants could be placed under canvas, so much the better; but deep cold pits, which can be covered over and shaded with mats, would do just as well. They must not have the burning sun, for it would damage the young shoots and curl their leaves, spoiling them for a season altogether. Give plenty of air all the day through; plants can hardly have too much. The plants still in bloom or coming into flower will now have more room, and should be placed a good distance apart.

Botany Bay Plants.—Many of what are called the hard-wooded plants, such as *Acacias*, *Hoveas*, *Heaths*, *Chorozemas*, *Epacris*, and *Botany Bay* plants generally, may be now declining flower. Put them out in a shady border, where they are sheltered from the high winds and free from drippings of trees, to make their new growth; but, as before, see whether the shape of the plant can be improved by cutting in.

Calceolarias.—The plants in flower must be kept well watered and shaded. Those going out of bloom should have the decaying flower-stalks cut off, and should be set out of doors in a cool, airy, but not too shady situation, where they will gradually renew their growth previously to propagation. Any later plants coming forward for bloom must not, on any account, have any check for want of water.

Cinerarias.—As these plants go out of flower they require similar

treatment to the *Calceolaria*, in order to induce the old stools to throw out shoots for the purpose of propagation. As soon as any suckers or shoots from the base of the plant are produced, let a portion of them be divided for a supply of the earliest-flowering plants. They generally divide readily with roots attached. The young plants should be grown on in cool frames during the summer, so that they may be shaded in hot parching weather.

It is a good plan to plant out some of the old plants in rich soil, to furnish a quantity of suckers for propagation.

Cleanliness and Order.—Pick off from the plants all dead leaves, and keep the house clean. On no account allow dead leaves to lie about on shelves or in pits; they engender damps, which are fatal to plants in the vicinity. Pits should be kept especially clean and dry. It is of the greatest benefit to plants to keep shelves and tables clean; they should be frequently washed, and wiped dry afterwards. It dislodges vermin, and the eggs of vermin.

Climbing Plants.—At this season the growth of climbers is very rapid, and, unless it is closely attended to, soon gets into confusion. The young shoots should therefore be arranged on the trellises or supports before they are too far advanced.

Cuttings underglasses must never be allowed to get dry; but, on the other hand, the glasses ought to be wiped daily quite dry, or the cuttings are apt to damp off and rot. Many plants root easier when the cuttings are struck in sand, with the bottoms just touching the ordinary soil, but not entering into it. Hundreds of plants do not re-

quire it, but it certainly facilitates the striking of everything, whether it be required or not: every time it is watered the sand washes down close to the stems.

Ericas.—The *Ericas* coming into flower ought not to have the burning sun on them, and being in peat, which is little more than a vehicle for supplying water to the roots, and affords little nourishment of itself, they ought to be examined twice a day, to see that they are sufficiently moist.

Foreign Seeds.—Sow seeds of foreign plants the instant you get them, without considering the season, because many seeds will germinate at the time you get them that would be quite perished if you waited for a proper season, and all seeds grow best while new.

Fuchsias.—*Fuchsias* must be regulated as to form as they advance, and those wanted to be bushy must have their shoots stopped by pinching the ends out.

Geraniums.—The *Geraniums* in the greenhouse should be shaded, for the flowers are soon gone if they have all the sun. Seedling *Geraniums* may be pricked out from the seed-pans to small pots, three or four in a pot, planted round the edges only. Seedlings in pots must be shifted as fast as they fill the old pots with roots.

Insects.—Plants should be frequently examined, to see if there be bugs or scale about them; they soon become unhealthy unless they are instantly cleaned. Wash with soap and water, and afterwards with clean water.

Seedling Hard-wooded Plants.—Seedling greenhouse plants should be kept clear of weeds, and, as they get large enough to be handled, well pricked out in pots as *Geraniums*.

Specimen Plants.—Young specimens of greenhouse plants must be stopped or otherwise, as they are required dwarf or pyramidal.

Syringing occasionally does most plants good, but it should be done in the morning, that it may not create a general damp throughout the house. All the heat of the day the house should be open as much as possible; opening doors at each end creates a draught which is not healthy; but to open all the top and front windows is advisable at all times in hot weather.

Watering.—Watering is now a complete business: the plants must not all undergo the operation, whether they require it or not, but must be regularly examined. Some will be found dry and wanting moisture; others will be found moist enough, and ought not to have more till they are dry by comparison.

JULY.

 CALENDAR OF OPERATIONS FOR THE FLOWER
GARDEN, SHRUBBERY AND GREENHOUSE.

Anemones as they die off should be taken up, and their tubers dried in the shade, where there is free access of air and light, and when thoroughly dry be packed up in thin bags and boxes. Gauze or open canvas bags are always better than paper.

Antirrhinums require support sometimes. Look over the seedlings as they come into flower, and select such as have good properties.

Annuals.—Late ones may be planted out at the beginning of the month. Weed those in beds and clumps, and draw some out if they are too thick. Sweet Peas must have good supports. Stir the earth of the borders to clear the weeds. Annuals in pots—we mean of the ordinary kind—should be placed in the open air, rather shaded, and be copiously watered.

Auriculas.—These must be shaded from the heat of the sun, if they are not already placed in the shade. Examine whether any of the draining is stopped, and remedy it if it be so. Take off dead and yellow leaves, and if they are too wet let them be occasionally covered against rain. Prick out any seedlings that may be large enough round the edges of pots, an inch apart.

Balsams.—Continue shifting the pots as they fill with roots, and keep them near the glass, with a good share of air during the heat of the day. Put out in the borders all that you do not mean to bloom in pots.

Biennials may be planted out in beds if not done before, and, where the places are at liberty, any of them may be planted at once where they are to bloom.

Bulbs of whatever sort that are left in the ground, and require taking up, should be attended to the first week. It often happens that Tulips are not ready till this month, or that the weather has not been favourable for the job; but no time must now be lost.

Campanula.—The variety commonly known as the Chimney Campanula is now growing fast in the blooming-pot. Fasten the rising stems to proper supports; as they advance water well, and keep the pots clear of weeds.

Carnations and Picotees.—These must be disbudded. Leave no more than two or three buds on each stem, and let these be the buds nearest the season you want. If the Carnations and Picotees are too forward we are glad to get rid of even the crown bloom-bud; but it ought not to be done lightly,

because in most cases it is the finest, though, if taken off before it begins to swell, the second takes its place. Tie the stems carefully to the stakes; as they grow up they must be able to push the tie up with them, or they might damage. See that no vermin infest them, and be liberal of the water. When the pods have swelled full tie a piece of matting round the middle, and, as soon as it will allow of the operation, tear down the green covering or calyx all round to the band; the green will divide in five, and easily come down; this enables the petals to open all round alike, whereas, if the green were not torn down in all five divisions, they would have burst on one side first, and nothing afterwards could make it even. Put a round card on the pod half way up it close to the tie, and the petals may be placed in their proper situations: the large-formed petals first brought down to form a circular dish, as it were; those of the next size may be brought down to cover the places where the others lap over; and a third row, rather smaller, may be set again upon these: whatever else is left may form a crown, which, with the horned pistil, is a good finish. To get the card on, a slit is made from the side to the hole in the centre.

Chrysanthemums. — Strike the last tops to form dwarf plants. A little bottom heat would be desirable, as they do not strike so free this month as last, or the month before; but, as they have grown near their full length, they have not much further to grow without flowering. As soon as they are struck pot them in forty-eight sized pots.

Climbing plants, such as Honey-suckle, Clematis, and others requiring support, should be often looked at, and their new growth that is loose properly fastened as the shoots advance. Climbing Roses want constant watching.

Cockscombs. — Give plenty of nourishment and heat, repot as soon as the roots reach the side, give occasionally liquid manure when the pots are getting pretty full of roots, keep the heat up to sixty-five or seventy, and keep them close to the glass.

Dahlias. — These are getting rapidly forward, requiring one man's time to fasten out the branches, clear them of useless growth, pull off all their imperfect buds, catch the earwigs, and give water, although, as before, we would rather they had one good watering all over the ground once a week than a moderate or partial one once a day; besides, when the waterings are further apart, there is the better chance of a shower of rain relieving us from the trouble. As the blooms come out you have to make up your mind whether you will grow them naturally or artificially, that is, whether you will cover them up or let them take their chance. If you intend to pot them, get square boards as large as will hold a thirty-two sized flower-pot; let there be holes at the corners, or at two corners, to hold legs that shall support them the height of a flower, whether it be at the bottom or half way up. A slit sawn in this board so as to reach the centre enables you to pass the stem of a bud to the centre of the board, and this slit may be stuffed full of moss or cotton, by which the stem is kept in its place, and the crack will let nothing through.

This is supported by its feet level, and the right height, by thrusting the sticks more or less into the ground, or cutting them to a proper length, the feet are pointed to go into the two holes. It then forms a level table with the bud through the centre, and when a flower-pot is over it, with the hole stopped, it keeps out the vermin. If, however, your Dahlias are to ornament the garden, and exhibiting is a second consideration, leave the apparatus for covering alone, and trust to fortune for fine blooms. If you have any that are scarce or dear, take off young cuttings, and strike them in strong bottom heat.

Evergreens and ornamental trees and shrubs are in full growth. Look well to the growing branches, and see that they are not overgrowing themselves and getting the plant out of shape; check any that are growing out of the way; stir the earth on the surface of the beds. Water the American plants copiously from the moment they are beginning to grow; they are frequently unable to complete their growth for want of ample refreshment. The Rhododendrons, Kalmias, Andromedas, Arbutuses, Magnolias, and such-like shrubs, must be watered in dry weather the first season they are planted.

Gladiolus.—Fasten the stems to appropriate supporters, and give them an abundance of water.

Hollyhocks.—Look well to the seedlings, and mark any that are better than we have already got, but throw away all secondary things. Nothing that is perennial should be tolerated as novelties unless they have real merit about them. The flowers should be very double, the petals very thick, the colour very new, and the spike

very compact, to justify our keeping one to propagate; and these novelties of merit are not common.

Irises.—The numerous Irises that bloom from early in the spring till late in the summer should be regularly noticed, and especially the seedling English Iris, which now comprises so many very splendid varieties; and such as are worth cultivation should be taken care of, and their principal features noticed, or they should be numbered, and entries of their peculiarities made in a book.

Lily.—The large white, orange, and scarlet Lilies in the borders should be supported by stakes. The Japan Lilies in pots should be kept in the shade, for their delicate blooms would soon suffer under a hot sun. The half-hardy Lilies of all kinds form beautiful objects in collection; they require a good deal of water while in pots.

Lupinus polyphyllus and other perennial Lupines.—Seedlings should be planted out in nursery-beds, or where they are to stand for bloom, if not done before. In either case they should be well watered, and, if the weather be very hot, shaded also; but if they be taken up carefully after watering the seed-bed, and planted out after the sun is down a little low, they will suffer nothing.

Mimulus seedlings must be kept clear of weeds. If you have any worth propagating, you may increase them as fast as Verbenas; and planted all about the borders they are most showy and dwarf, and from a pinch of seed you will have a hundred different varieties.

Peony.—Most of these plants have lost their bloom, but it is not well to part them until the end of autumn, when their growth

is done, although some do it when their bloom is done.

Pansy.—Continue to strike side-shoots and make new beds. Water well in dry weather, shade the individual blooms required to be preserved, stir between young plants. Plant out seedlings, and sow seed as fast as it ripens; but if you have any regard for the quality of your seedlings, mark the best blooms only to save seed from, and sow as soon as you pick it. You can hardly have it at a wrong season, because they will stand the winter, and it is a matter of total indifference whether they flower in spring, Midsummer, or Michaelmas. There is no time of the year in which you may not strike the side-shoots of Pansies, and they make the best plants.

Paths.—The principal enemies to paths are worms and weeds, and they must not be allowed to get ahead, or they will be very troublesome. The worm casts look ugly, and when swept off you are just as sure to find as many the next morning. Lime water makes the path white for a while after drying, but it is the best thing you can use. Fill a good watering-pot, and with a rose water among the casts; for the holes being open, and the worms not far below the first thing in the morning, it generally settles all it reaches. The weeds must be hoed up or pulled up; for, if the old remedy of salt and water be applied, it runs down to the side of the path, and kills grass or Box at once if it be there.

Lawns.—Mow once a fortnight, and sweep off the grass directly, for if it lays an hour or two in hot weather it turns the grass under it yellow. Fork up the earth that

is open round the specimens, and keep them clear of weeds.

Petunias.—These may be still planted out; they help to fill the borders with flowers. Those first planted out want cutting back or removing; the young ones will very soon flower. Cuttings may be struck under a hand-glass in the border, though heat at bottom rather hastens the striking; but the present planting out will be sufficient for the season. Seedlings may be planted out in beds, that they may be the more easily managed and marked when examined.

Phlox Drummondii, as well as the perennials, may be shifted from small pots to larger, and all that are not required in pots may be turned out in the borders. *Phlox Drummondii* makes an interesting plant well grown, and comes many different colours. Side cuttings, when young and struck, may be kept through the winter, and thus the annual rendered almost a perennial.

Pinks.—The pipings that have rooted may be planted out in nursery-beds as near as three inches in the row, and six inches from row to row; but when they have grown strong enough they must be removed to the beds they are to bloom in; at least, all the beds you care to grow well and in good colour must be made up and planted in August or September for choice, though many delay until it is too late to get bloom of any sort.

Polyanthuses.—If these are not already parted let it be delayed no longer. They should have been parted by the middle of last month, but they may yet make good plants in good ground, with the help of a good autumn. Seed-

lings not planted out should be got out directly. Primroses should be served the same if not done before, but there is yet time to recover a good plant. We mentioned this and the Polyanthus in May.

Ranunculuses. — Shade the remaining flowers, and water: still keep them clear of weeds. If the leaves turn yellowish by the end of the month, take them up; put them in the shade to dry; when dry clean them, and put them by in gauze or very light canvas bags. Keep all the sorts separately by name or number, and see that none become mixed, for the value is almost gone without the name is preserved.

Rhododendrons must be well watered. Seedlings may be planted out. Beds of small plants should be watered in dry weather, and all plants in pots should be in the shade, and their moisture regularly attended to.

Tulips may not have been taken up the first week, and if so, lose no time. When they are up, level the bed, and bring the Carnations and Picotees under the canvas. They may either occupy the space of the bed, if raised above the path, or, if the bed be even with the ground, they may be placed all round. By the end of the month they will be in full flower, and make a noble appearance.

Geometrical Flower Gardens, Beds, &c. — The most effective objects in these beds are the Verbenas or the dwarf scarlet Geraniums, Petunias, and some of the showy annuals. Those beds which have had Stocks that are now going off, or may go off, should be planted with other subjects between, such as China Asters, French Marigolds, or any other

annual that has been taken care of in pots, and that will turn out well—*Phlox Drummondii* and late-sown *Nemophila*, *Mimulus*, and any other dwarf thing that is forward, planted between anything that has not quite finished flowering, or by removing what is already there, planted to take their place. The paths will require weeding frequently, and the Box edging attended to.

Seeds of hardy things cannot be sown too soon after they are ripe. Nothing exhibits more healthy growth than a self-sown seedling; and if it be so, how can we do better than sow directly the seed is ripe and gathered?

In planting out seedlings of any kind choose a dull day if you can, and have the beds not more than four feet wide, that you may reach the middle without putting your foot on it. When they are very small have half an inch of sifted stuff on the top, otherwise many of them will perish, because the roughness of the soil may prevent the roots from being pressed solid. When they have got hold well, and rooted down into the coarser stuff, you may stir the soil and mix the fine with the coarse by forking it, because fine stuff runs too close together when the rain comes plentifully, and this is never favourable to plants. If you cannot get dull weather, plant when the sun has gone low. Water well, and shade in the heat of the day until the plants lay fairly hold of the ground.

THE ROSE GARDEN.

This is now in full beauty. All the sorts of Roses of any consequence are now in flower. Take especial care that none of the stakes get loose, and leave the

tree to bend to the winds. Now go to budding in good earnest. Take off the shoots from the Roses you want to propagate, tie them in bundles with their names to them, cut back the shoots of the stocks to three or four joints, or so short as will prevent the briers from being inconvenient, and insert the buds close to the heel of the shoot and the main stem on the upper part of the shoot. The piece of thin wood a full half-inch long is to be shaved off the Rose branch with a very sharp knife, inserted a full quarter of an inch below the leaf, and brought out as much above it. The small piece of wood that will come out in the bark must be raised up at one end with the point of the knife, and drawn out, so as to leave the bark only with the leaf and the bud at its base on it. Now cut a slit three quarters of an inch long in the bark of the stock, and a cut across it half way to make a cross section of this slit; lift the bark with the thin end of the budding knife or a thin piece of hard wood, tuck in the bark so that the leaf shall be at where the cut crosses, the bark of the stock lapsing over the bark of the bud, bind it firmly but not too tightly, and it is done. By keeping three or four joints of the stock the sap is drawn past the bud, which soon unites. Look well to all Roses that are worked, and see that all growths from their stocks are destroyed. Rub off all buds and cut off shoots, and grub up suckers from the roots, for they all rob the Rose itself of nourishment, and if they once got fairly ahead would destroy the worked part altogether. Roses in pots must be shifted if they have filled the pots with roots. Keep seed-

ling Roses properly shifted if in pots, and well weeded and watered if planted out. Any seedlings that indicate by their foliage that they are novel may be deprived of a bud or two to put into strong stocks, for they will thereby be hastened into bloom by the vigour of the stock much sooner than they would bloom if left to themselves. Continue to remove all decaying flowers, otherwise they would seed perhaps, and certainly look untidy; removing the seed-pods prolongs the bloom. Let a common China Rose be left to itself, and in a few weeks the hips are seen swelling out all over the tree, and the bloom will have disappeared; for, as they constantly appear while the new shoots are continued, so they are completely suspended, as it were, when the swelling of the seed-pods arrests the growth. Let another in the same position be deprived of the bloom-stems as fast as the flowers decay, and the growth and bloom will be found continuous.

THE GREENHOUSE.

Azalea Indica, having passed their flowering, will be making their growth, which should be in the greenhouse, with plenty of air and water. Take out any misshapen branch, and stop any very ugly shoots; and if the pots be very full of roots shift the plants to larger pots with great care, and see that the new soil is solid between the old ball of earth and the pot. On this account very small shifts are objectionable. There ought to be sufficient difference in the size to allow of the earth going down well, and it may be pressed with the finger, or a piece of wood small enough to be clear of the fibres when pressed

down against the side of the pot. Struck cuttings may be potted off, small plants shifted to larger pots, and other cuttings may be struck as soon as the growth is complete. Cuttings of the last season's wood will always strike freely.

Calceolarias in flower must be shaded to prolong their bloom. Seed may be sown in pans of rich light soil, if not done before.

The *Camellias*, though removed from the greenhouse to a shady part of the garden, must not be neglected. While their growth continues they require to be watered; but as soon as their shoots are completed, which may be known by the buds at the end forming, they must have no more water than will just keep them from flagging, and have no sun at all. It is one of the best possible contrivances to have a canvas roof over them, to keep away both wet and sun; but you must then attend to the giving of necessary moisture.

Climbing plants must be attended to every two or three days, that the growing shoots may be trained to their proper places.

Hard-wooded plants generally are making rapid progress in completing their season's growth, and are best as much in the shade as may be. Under a canvas roof is better than in the greenhouse, but wherever they are, they must be attended to in the watering.

Ericas require all the air they can have, plenty of light, and great attention should be paid to them twice a day to see that they get not too dry. Water them effectually when they are to be watered. Nothing is worse than to wet the soil a little way down, and not all through.

Fuschias must be shaded, but it

should be with thin calico, or something that will not take away the light, and they should have abundance of air.

Geraniums out of bloom may be cut down to rather stumpy skeletons, and the cuttings may be put in under a hand-glass in the common border. Shaded merely from the heat of the sun, and well watered, they will strike soon. The early plants may be shifted, the earth shook out of their roots, and in repotting use loam from rotted turves two-thirds, peat one-third, and stand them in the open ground on a hard bottom, but where they may have all the sun. When you cut them back remove the weakly shoots altogether, and only leave short limbs of those you do, in such positions as to form a good foundation of a handsome-headed plant.

Greenhouse Rhododendrons which have made their fresh growth should be placed out of doors in the shade, where they have a hard impervious bottom to stand on, and worms cannot work through into their pots. Those which have not made their growth complete should have abundance of water, air, and light, but not the heat of the sun at mid-day.

Pruning of Flowering Plants.—When a plant is pruned into some sort of form you may calculate to a nicety how much growth it will make in a season, and if you can keep it in good health the less it grows the better. The principal thing is to form the tree while young, checking its exuberance where it is growing too fast, and encouraging the shoots that are in a right direction; but the time to prune a plant into form is just before it begins to make its season's growth, at which period

many plants will bear cutting back to the joint we wish to start, and thereby regulating as near as possible the form for the next season. The greatest error committed in the growth of plants is exciting them too much, and not cutting them back enough.

General Remarks.—The greenhouse should be kept very clean—all the shelves free from dead leaves and fallen blooms. An occasional washing of the shelves is desirable, for if these, and the corners in particular of shelves and ledges, be left unwashed long together, they become the receptacle of all kinds of vermin and their eggs. The floor should be kept well brushed out, and if in consequence of cloudy wet weather for some time the house gets damp, light a fire and open the house a little, that the plants that remain in may have plenty of air, while the temperature is raised to dry it. Shift such plants as have filled their pots with roots to pots a good size larger.

We have noticed at many places that the remedies for the destruction of vermin, or the prevention of their attacks, and, indeed, for many other things recommended by gardeners, are pretended to be tried, and have been said to fail, when it has been entirely the fault

of the experimentalist. In one case they obtain the wrong material, in other cases they use a proposed mixture too strong, and sometimes they omit some article or some precaution which they choose to think immaterial, when it is of the highest importance. Occasionally instructions are too indefinite, as where you are instructed to take a pinch of this, a handful of that, or a pennyworth of the other. In one case we find somebody who is to mix soot and saltpetre in given quantities with water of no given quantity, but to the consistency of cream, and dip the roots of plants in it before planting to prevent their clubbing, and who is outrageous because he has killed all his plants. Now the unfortunate operator, we have no doubt, thought of nothing worse than Devonshire cream, which is but one remove from butter itself, and so lost all the advantage of the proper quantity of water. Generally speaking, there are not two articles in use more destructive to vermin in the ground, and so nutritious to plants, than soot and saltpetre, but if anything were over-dosed with them they would be fatal. The soot, however, may not have been pure. At all events, all persons practising from recipes should be certain about quantities.

AUGUST.

CALENDAR OF OPERATIONS FOR THE FLOWER GARDEN, SHRUBBERY, AND GREENHOUSE.

Annuals.—If any remain to be turned out, either from seed-beds or from pots, lose no time in putting them in the borders. If any of those in the ground have been sown too thick, or have not been thinned enough, remove enough to give room, and if they are wanted transplant those you remove.

Auriculas.—Examine all the plants by turning the balls out of the pots to see if the roots are healthy. If they have become matted round the pot strike all the earth out of the roots, pare away any little cankerly place, and, if the bulky part of the root has become long, cut it back to about two inches: this will give room for the same plant to go back to its own pot, or a closer one of the same size, or even a smaller one. The removal of a part of the main stem, as it were, of the root, removes also a great quantity of the fibre that matted together in the pot. Then fill the pot one-fourth with crocks, and the rest with compost; but the quantity put in before the plant is placed in it must be just enough to rest the stump of the root on, and the fibre must be spread round so as to reach the edge; then complete the filling, tucking it down with the fingers, but keeping the plant

with its collar, which is where the bottom sound leaf comes from the stem, exactly level with the top edge of the pot; thump the pot two or three times on the potting table or bench while you are filling the compost in, to settle it down a little, and fill within a quarter of an inch of the top edge. It is a common practice to pot all the stock of Auriculas, whether they really want it or not; but if the roots are healthy, and do not mat round the sides, but merely show here and there, they do not want it, and are none the better for being disturbed. Of the proper soil for Auriculas we have a hundred different receipts by different writers. Those who attend to Auriculas only, and want to excel everybody, can afford to try experiments, and use very exciting soil; but the private grower should adhere to that which will keep them in good health without so much watchfulness. The loam from rotted turves two-thirds, and cowdung rotted into mould one-third, with silver sand to lighten it if it be too stiff, cannot go wrong, and nothing better can be used by private growers who want healthy plants and good colour. The growers for sale want rapid growth and huge trusses;

they want small offsets to grow into saleable plants, and use much more exciting composts. Dickson, for instance, uses good loam and sand for one-third of his compost, half horse and half sheep's dung to form another third, then leaf or vegetable mould and peat, which form another third. Now peat, if really pure, is good for everything in some proportion, and a capital thing to lighten stiff loam; but peat varies more than any other soil; and while from some commons, as Wimbledon, for instance, it is excellent, from many other places it is full of iron, and poisons everything it touches, or nearly so. Now, the loam from rotted turves is nearly one-third vegetable mould, and one-third woody fibrous matter, partaking a good deal of the nature of peat, and one-third earth itself. If you are obliged to use clear loam without the fibre and turf, one-third of loam, one-third of good peat, and one-third of vegetable mould would be an equivalent for the loam from rotted turves; and with regard to the dung, sheep's, horse's, or cow's, when rotted into mould, only differ in strength, not in quality. Sheep's is the coolest, cow's the next, horse's the warmest, and half horse's and half sheep's would be equivalent to all cow's; but the grower need not fear his proportions very much. When you are potting the plants take off all offsets, and those which have no roots should be put round the edge of a small pot or pots. Let these stand in the centre of larger ones filled with mould, so that a bell-glass may be placed over them, for it hastens the rooting. Those which have roots may be potted in proper sized pots, always taking care that the pots be not

too large; and offsets may have all the soil shaken out of their roots when shifted, except in growing time, when, if they require other pots, the ball ought to be removed whole. When potted give gentle watering; place them all in a frame, and shut them up for a day or two, shading them from the sun.

Balsams require changes of pots and picking off the blooms all the while you require them to increase much in size; but when you want to encourage the bloom they may be left in their pots. Those who desire to grow them very large must give plenty of pot room, plenty of heat, occasional picking off the young buds, and plenty of water. Others, who want moderate size and early flowering, may leave the plants to themselves as soon as they are in thirty-two sized pots.

Carnations and Picotees.—When the Carnations and Picotees have done blooming, and the shoots are all layered, turn the pots out of doors, and let the plants have all the weather. See that they are not devoured by slugs or snails.

Chrysanthemums.—Take heed that the young plants which are out in the open ground do not root through the pot into the earth; shift them into other pots as the old ones get filled with roots; pot off the struck cuttings of last month in sixty-sized pots, and place them in the open ground as soon as they are established, and when the pots are filled with roots shift them successively to forty-eights and thirty-twos. The plants that were lopped last month for cuttings have become bushy, but they must be well attended to and shifted; for, although they will be later, they will be fine if taken care of.

Climbing plants must be fastened as they advance. When they have good growth upon them they are very apt to weigh down and disturb some of the fastening, especially Honeysuckles and Clematis, which form large hanging heads, and get confused, unless watched and fastened as they grow.

Cockscombs.—Continue the treatment already recommended. By this time the flower, which was not so large as a button when the plants were starvelings two inches high, is increased as much as the plant; for the flower seems to have the same power of growth as the plant itself, and ramifies as much.

Dahlias.—Those who grow for exhibition must watch all the opening buds, and the instant they find that a flower will not do they should take it off. Every flower that opens weakens the plant, and therefore those who are careless of everything but success, and sacrifice the appearance of the garden to the shows, should not allow one to remain on the plant after it is found useless. The hunting for vermin and destroying them must not be relaxed, for a single earwig would destroy a bloom. Those who imagine the covering with a flower-pot on a flat tile will be an effectual protection to the flower against earwigs, must see that the pot is perfectly level on the edge; not one in twenty is so. But at some of the potteries they make pots on purpose, with no bottom, but a groove to hold a round glass or a round tile, according to whether they want the cover dark or light. Continue to take shoots off any that you require to increase; but remember that the hotter the weather the hotter must be your striking frame, for the bottom

heat ought to be as the top just to promote striking, and this is the great cause of difficulty in striking late cuttings. Seedlings are beginning to flower. The instant you see that a plant will be useless dig it up; or, if your time is short, chop it down, and do not miss a day in examining. The great evil to guard against is suffering yourself to be tempted to leave a doubtful flower; for if you once do this you will find a quantity of things about you just too bad to be worth growing, and the desire of selecting a few will make you bestow time and trouble that nothing will repay. If a flower is not better than anything we have already, or tolerably good with an entirely new colour, reject it at once; it is infinitely better to see the ground clear than cumbered with ordinary flowers. It is necessary to lay down a rule to begin with, and to persevere with it, and that rule should be to destroy everything that is not decidedly new and good. If you find any really desirable flower set to work at once to take cuttings, and propagate it, because the sooner you have a stock the better. Take the side-shoots as soon as they are long enough, and, as it is necessary to induce these lateral shoots, it is well to stop one or more of the branches by pinching off the ends. Take off about two good joints of the cuttings you intend to strike, put them singly in pots, and plunge the pots in the hotbed to the rim. Keep the glass pretty close until they have struck, watering, however, freely, and keeping up the heat, but shading from the mid-day sun.

Dutch Gardens or Geometrical Gardens.—Be ready with some subjects to fill up vacancies in the flower-beds. They should be turned

out of pots ready to flower, because nothing looks worse than empty flower-beds, unless it be the dead plants of flowers already gone by. If the subjects are planted wide enough apart to get others in between, Stocks might be planted, with China Aster and Nemophila, and other similar changes can be made with advantage.

Hollyhocks. — Seedlings are in bloom or coming into flower, and you must examine them. Rejected ones must be cut down at once, and the others left. Mark with labels such as are worth keeping, and let the labels refer to a book, in which you enter all the remarks you have made on the flowers, particularly a good description of the points for which you value them.

Lupines. — Only the perennial kinds are worth notice at this time. All the seedlings that have not been planted out should be placed in nursery-beds and borders, according to where they are intended to bloom the next year. Many, however, do this earlier.

Mimulus in beds are brilliant, and if kept well cut back, and the old stuff that has done blooming cut out of them from time to time, will continue to flower until the frost cuts them off altogether. There is nothing more brilliant while in bloom than the *Mimulus*; and although, if neglected, it will go out of flower for a time, it will continue to grow and bloom as long as you will cut out the portions that have done blooming.

Mowing the Lawn, Keeping the Shrubs within bounds, Weeding the Gravel Walks, and Hoeing the Ground all over, will be found beneficial in all the hot weather, and watering must be governed by the state of the weather, only still bear in mind that once water-

ing thoroughly is better than half a dozen trifling waterings.

Pansies. — Continue to take side-shoots, if you can find them, and propagate for new beds. When you care to keep up a lengthened succession of blooming sorts you should obtain side-shoots, and strike them whenever they present themselves. When you cannot take side-shoots prefer small shoots to large ones; but there is nothing makes a better plant than the side-shoot that comes up from the bottom. A new bed may be made every month through the summer if it be desirable, and those that are too late for autumn bloom will be ready for the spring.

Paths. — Narrow paths are a nuisance in gardens. They are unsocial to company, destructive to edgings, detract generally from appearances, and have but one solitary excuse, which is a mercenary one—the ground is scarce, and therefore people persuade themselves they cannot spare so much. Nobody can admit the excuse, because if there is to be no comfort in a garden there may as well be no garden. Where they are intended to walk on, three feet is the least space that can possibly be tolerated for one person to walk at a time; but five feet is required for two, otherwise the ladies' dresses sweep over whatever edging there is, and hurt the flowers nearest the borders.

Perennials. — This is a large item in garden plants. If they are planted out from their seed-beds or seed-pans early in this month they will get sufficiently established to stand the winter; but if driven late, and bad weather ensues directly, they will for the most part receive a check that does them mischief. Seedlings, if very choice,

should be potted and kept in frames, Auriculas in particular. Carnations and Picotees, if valuable sorts, should also be potted in plain loam without dung; but all hardy perennials are best planted out in nursery-beds. Hollyhocks, Polyanthus, *Lupinus polyphyllus*, Phloxes, Antirrhinums, Columbines, Sweetwilliams, and many other plants, do well in the open ground in nursery-beds four feet wide, and plants six inches from each other. These must be watered when planted, and be afterwards kept clear of weeds.

Phloxes require support if tall, and all tall weakly border plants require the same. Phloxes should be supported loosely as they rise for bloom, because, if fastened tightly, they cannot push up, but bend, and even break, with a few days' growth. *Phlox Drummondii* in full bloom gives the cultivator an opportunity of selecting the best colours for seed; but if the form be bad it is better let alone. This annual is inclined to be well formed, and therefore to save seed from any one second-rate would be bad. These may be struck in heat under glass, and, though only an annual, may be thus converted, as it were, into a perennial, because it lives through the winter.

Pinks.—Make beds with the rooted pipings if you have not already done so, and recollect that a Pink is nothing without it grows in rich ground. The effect of poor ground is loss of size, colour, and character. A laced Pink loses its lacing, the colour is spoiled, and it is so small that it would not be known in many cases. Look over new beds already made, and see that none of the plants are disturbed. If they have been moved

by worms or other causes press the earth about them.

Plant out Biennials if you have not already done so, and also perennials, Polyanthuses, Primroses, Wallflowers, Sweetwilliams, Canterbury Bells, Two-year Stocks, Larkspurs, seedling Pinks, Carnations, Picotees, Hollyhocks, and other choice things. Weed those already planted out.

Tulips.—Throw the soil out of the beds in a ridge on each side, that it may be chopped over and sweeten during the period between this and November, the month for planting the best bed, as well as the open ones, and let there be a very sharp look-out for wireworm, grub, and other vermin. Examine the bulbs in the boxes, and begin making such alterations in the arrangement as you propose. Whenever you have half an hour to spare, as it is generally too long a job to be managed all at once, lay out all the very small offsets, to be planted early in October, or even directly, if they are at all in danger of drying up and shrivelling.

Cheap Green Colour for palings may be made by a mixture of four pounds of Roman vitriol, dissolved in boiling water, only sufficient to dissolve it, and two pounds of pearl ashes, all well stirred together, with two ounces of powder of yellow arsenic. The object of this is to daub over rough fences and palings; it is not pretended that a few pence are to produce a paint equal to that which would cost as many shillings. It soaks into wood and kills vermin.

THE ROSE GARDEN.

Roses.—Examine all the Roses that were budded in June and July; first, to see that none of the

shoots of the stock remain on, for they would weaken the buds; secondly, to see if the buds have united. The tie may be very gently and carefully untied; and if the bud be green and plump they have taken, and the stock that is beyond the bud may be cut off close. Cuttings of China Roses may be taken off, and planted in the open ground in the shade, under a hand-glass. If you shade the glass it matters not where they are put. The Roses in flower should be, every two or three days at the most, cleared of the decayed flowers; it promotes the continuance of the bloom. Remove all suckers from the roots; prune judiciously by cutting out all weakly shoots, and occasionally by making shorter that which is growing too strong. Cuttings that have struck may be potted off or bedded out; they make excellent autumnal flowering groups, may be bedded out in different-coloured patches, or with the colours mixed. The crimson China for the outside row of a basket, and the common China inside, and to finish, makes a very effective appearance; but there is an abundance of choice for your purpose. The buds of rare Roses may still be inserted if the bark of the stock will rise; but if not, insert them in common China stocks, which will always rise, and whether they agree or not, the bud will grow enough to make sure of saving the sort; but generally the fancy Roses do well on China stocks. Roses in pots may be shifted if at all pot-bound, but watering with a little manure water is almost as good as a shift. Small kinds of Roses are best on their own roots. Use the knife to rank-growing Roses, and judiciously prune all;

that is, so far as the removal of weak spindly shoots and superfluous branches goes. Go over all the Rose nurseries, to see if you can pick up anything new and good as an improvement to your own collections, but buy nothing without really admiring it.

THE GREENHOUSE.

It is requisite to turn pretty well everything out of the greenhouse into the open air, and as much as possible in the shade, far enough to keep off the mid-day sun. Cactuses may be excepted, for they may have as much sun as possible after they have flowered; nor will they require to come back to the greenhouse until November. Botany Bay plants, and hard-wooded plants generally, are rapidly finishing their growth. The Camellias have set their blooms; Azaleas have completed their growth: be careful that none of the roots grow through the bottom of the pot, and root into the ground. The pots must be examined occasionally to see that the drainage is free, and at leisure you may begin to put sticks and regulate their figure, preparatory to going into the houses. The greenhouse being more empty now than at any other season, should be cleared of its plants, and well washed inside, and, if required, painted outside: neglect in these particulars is fatal. Neglecting cleanliness inside is ruin to the plants, and neglecting to paint as often as wanted outside is fatal to the woodwork, which soon decays if the wet soak into the work.

Camellias. — Take cuttings for stocks, and prepare the pots as last directed. Some like the cuttings large, but one eye below the surface and one above is long

enough for anything. These may be placed as thickly in the pot as they can be put, covered with a glass if you have one handy; but they will strike in a frame without any bell-glass over them. Stocks that have grown and filled their pots with roots may be shifted into larger pots, because the stronger a stock is the sooner a bud or a graft makes a plant on it. All the plants may be examined to see if they are pot-bound, or have filled their pots with roots, and any that have done so may have a shift and one watering to settle the earth to the roots, but after that may be kept short of water, lest they start off for growth again.

Cape Bulbs.—This is a good season for repotting this class of plants. They should be turned out of the pots they grew in, and all the bulbs and offsets collected from among the soil. These are then to be repotted in fresh soil, placing one, two, or more bulbs in a pot according to the size employed. Five or six of such bulbs as those of *Ixia* or *Oxalis* may be put into a pot five inches across; the larger *Gladiolus*, *Antholyzas*, &c., should be put singly into pots of that size. A good general compost for them is made of equal parts loam, peat, and leaf-mould, which, if the loam is light, will require the addition of only a very small proportion of sand. When all are potted they may be set on one of the shelves of the greenhouse near the light, and they should have but little water until growth is commenced, though the soil ought to be kept slightly moistened. When in full growth and flower they take much more water.

China Primroses.—Sow the seed

the first week in light rich soil that is to say, if you want a lot of single flowers, and let it be placed in the hotbed till it vegetates, when it may be gradually removed into the cold frame until it is large enough to prick out into small pots. Pick the dead leaves off your double ones, and if the pots are too full of roots shift them instantly to pots a good two inches larger across, and set them in a cold frame, so that they get no more rain nor sun than they require, and you have them under control.

Chrysanthemums in pots for blooming in the greenhouse must at this season be very closely attended; they must on no account suffer from want of water, or their lower leaves will be killed or turned yellow, greatly to the deterioration of the plants as regards their appearance. Cuttings of the tips of the shoots, struck now in a mild hotbed, make very interesting dwarf blooming plants.

Cinerarias.—Look to the seed of those you are saving from, and others you want to propagate may be parted, and all the offsets taken from the root repotted—if small, round the edge; if fair size, in the centre of a sixty-sized pot.

Climbing plants, such as all the *Kennedias* and their families, under whatever name they now go, must be fastened to their trellises as they advance. The *Tropeolums* also require constant care, and those which have lost their beauty may stand aside.

Cuttings of all kinds of greenhouse plants may be taken now: shoots that have completed their growth are the proper sort to prepare for striking. Cut up the bottoms to a joint, and strip off the lower leaves; prepare pots for

the more delicate things, by putting crocks and mould above them to within half an inch of the top, and fill that half-inch with silver sand thoroughly soaked in water, so that, without the help of any dibble, you can stick the cuttings in as far as the soil, and just through the sand; a little water will close the sand about the stems, and a bell-glass, just a trifle smaller than the pot, to cover them, completes the business so far; they may then be put into a hotbed not too powerful. All the hard-wooded plants will do for this treatment.

Geraniums.—The plants cut down last month, if kept rather dry and exposed to the sun, will now have broken out a supply of young shoots. As soon as these can be distinguished commence regulating the shape of the plants by thinning such as come in inconvenient places, or are too much crowded together, in order to give the others more air and light. As soon as they are well broken the plants may have their roots reduced, and repotted into smaller pots, after which they should go into a cold frame.

Plants in Flower.—Free-growing subjects in blossom, that may be getting in any measure exhausted, but which it may be desirable to maintain longer in a state of bloom, may be assisted by the use of weak manure water. This may be made of various ingredients, but the simplest and generally most easily obtained material is the rotted horse-dung from an old hotbed. Of this a spadeful may be put to a dozen gallons of water, and after being stirred up and allowed to settle, the clear liquid may be used, diluting it with half its bulk of pure water.

Red Spider.—This is one of the most disagreeable of all visitors. It insinuates its poison into the plants, and sucks out their natural juices, and when once they have a fair hold a plant is sacrificed; besides, it is a pest even to vines. The most effectual remedy is to sprinkle the flues with sulphur, and heat them so as to raise a moderately strong fume in the house; and we are not to be told this remedy is a bad one because it is possible to destroy a plant by excess of it.

SEPTEMBER.

CALENDAR OF OPERATIONS FOR THE FLOWER GARDEN, SHRUBBERY, AND GREENHOUSE.

Auriculas.—These must be examined, their dead leaves picked off, the frames cleaned out, and the pots arranged for the winter. They may have all the air that can be given by taking the lights partially or altogether off on all dry days. They must be shut down in heavy rains, because we must begin now to be sparing of water; not to let them get quite dry, but not to give them any water while they are at all moist. The less water they have, so they but keep alive, the better until they begin to grow again. Seedlings must be examined, as well as offsets, and all that are crowded and large enough to pot singly must be placed in small pots, one in a pot. Seedlings that have been pricked out many in a pot may be replanted half the number in a pot.

Carnations and Picotees.—As the layers of these plants get well rooted they must be cut off the old plants, and be potted in clean loam, without dung, and if the loam you have be too stiff mix two-thirds of it with one-third peat, if you have it good; and if not, put instead of it as much sand as will open the pores a little, for the less excitement these plants have during the

winter months the better. These should be two in a pot of the size forty-eight, and when watered, to close the earth about their roots, they should be placed in a frame on a very dry bottom. The best way to ascertain whether the layers are struck is to scrape the earth away from the upper part of the stem of the layer, and draw up the peg. If the layer is pretty firm in the soil it is rooted, and should be cut off the old plant as near the main stem as may be, because whatever is useless can be cut off afterwards. Having severed the layer from the plant, thrust a trowel or a wooden spud into the soil, so as to raise the earth and roots together without breaking the tender fibres; then with a sharp knife cut off all the stem below the part rooted, and pot them near the sides of the pot, opposite each other. Let each pot contain a pair of the same sort. On no account pot two different varieties in the same pot, for it leads to occasional mistakes. The closer the stem below the root is cut off to the joint next the root the better, for there is less chance of rotting.

Dahlias.—Place extra stakes where they are necessary to support the growing branches, for the

height of the bloom may be considered to last until the frost catches them. The growth of the branches, however, renders them too heavy to be supported by the single stake, and therefore two or three, or even more, are sometimes necessary to save the heavy side branches from the effects of the wind. Towards the end of the month you must expect frost, and be prepared for it, and it is desirable to earth-up the stems and roots a few inches all round, that the crown may be protected in the event of a frost coming, because, if at all injured, the root may be lost by rot during the winter, or the stem may rot round the crown and destroy the eyes: earthing-up is an effectual protection. We need not repeat the directions for last month as to the general management. The cuttings that are striking, or have struck, must be kept growing in heat until tubers are fairly formed, when they may be gradually cooled, and have no more water; they may be then placed in the greenhouse to dry and die down; but this must not be done until there is a fair tuber formed. When perfectly dry the pots may be piled up in the dry part of the greenhouse on their sides, or placed anywhere out of the danger of frost, heat, and wet; but many of these will not be ready till October, or perhaps November.

Dahlia Seedlings.—By this time you will have been able to get rid of hundreds not worth growing, and you continue to see them opening from day to day without discovering anything, perhaps, really worth propagating. You must not be disheartened by the want of success so far as you have

gone; the best may come out last, and, inasmuch as single and semi-double ones are always earlier than others more double and decided, be not therefore careless from day to day because you have so often been disappointed, but go more particularly over those which you have considered doubtful, and, unless there is something very good of an old colour, or very novel in colour, have resolution enough to throw them away, and be not perplexed with a quantity of doubtful things not worth the trouble of propagating. The only varieties not really good that are worth trying again are those which happen to have splendid petals, but from their want of doubleness are of no use. It is just worth while to try such as these a second year, by cutting the bulbs up into a few pieces, and giving them a chance of coming double. The only excuse for this is the constant experience of our best flowers coming now and then single and bad, showing that a really good flower may give bad blossoms. We argue, therefore, that deficient blooms in a seedling may be the same as deficient flowers in an acknowledged good sort—only accidental. Pick off all the ripe seeds of Dahlias, and especially keep separate any of the pods or sorts that you may have marked as having been remarkably fine. Let the seeds be dried in the sun, and rubbed, to clean them from the husks. They may then be preserved in dry boxes until wanted for use. The seedlings that are really promising might be protected in some way from the chance of frost, and especially earth-up round the stems and roots, as directed for old plants, to save the roots from

its destructive effects, even if you cannot save the whole plant.

General Affairs.—Cut down the decaying stems of all plants out of flower; hoe and rake the borders, to clear away all weeds and leaves, and large stones; roll the gravel walks after rain, and always keep them clear of weeds; continue to mow the lawn as long as the grass grows. Prepare all the frames for the reception of their winter tenants, by clearing the ground on which they stand, and brushing or washing out the wood-work inside, so as to disturb the eggs of insects. The Box edgings have done growing, so that if necessary some could be removed, but the principal alterations in gardens begin next month. Tie up Chrysanthemums in the open ground, and remove the potted plants into the houses or frames. Potted annuals past their bloom should be turned out, and the pots cleaned and put away. The earth from pots should be all placed together in a heap; it is generally of great use to mix with other composts.

Geraniums in the Borders and Beds should have cuttings taken, that may be struck and grown slowly through the winter, for bedding out in spring, and any of the old planted-out ones that are worth saving should be taken up and potted, to go into frames or the greenhouse for the winter. Those struck now should have their tops pinched off directly they have struck root and begin to grow, because they ought to be kept stocky and short. They must have but little water during the winter, and be covered up, if in frames, to keep out the frost, for the garden depends much on a

supply of these plants in the spring.

Hardy Annuals.—We do not mean those usually called hardy, because some of them will not stand a frost; but such as will may be sown to come forward in early spring. Self-sown annuals suggest this, because they sow themselves by dropping when ripe, and it is at least the natural season for all hardy seeds.

Lilies, Crown Imperials, and other soft scaly bulbs, may now be removed carefully, for they will not bear to remain out of the ground long enough to dry, as they begin to get weaker. It is an early time for bulbs in general, but those planted, or merely removed from one place to another pretty quickly, take no harm. The scaly bulbs are imported in sand, or placed in sand immediately on their arrival, and if now procured should be planted forthwith.

Management of Flower-beds, &c.—About the end of September gardens look deplorable if there has been a sharp frost, and there must be something done to make them decent. By a very simple provision a wonderful improvement may be made in their appearance. There is nothing more easily managed than dwarf evergreens in pots; they may be potted very small, and kept in a common bed in the young state, and shifted from time to time as they grow older. Of the dwarf plants best suited to the purpose we are about to use them for, we may mention Laurestinus, Arbor-vitæ, Red Cedar, Rhododendron, Kalmia, Andromeda, Yew, Box, Holly, and *Berberis aquifolia*. We are looking upon the desolate borders and flower-beds, whose ornamental

tenants have been killed to the ground, or so damaged that we must remove them. First cut down everything that is past its beauty, and a blemish; rake off all the decayed leaves, stems, and flowers, so that the border may be at least clear; then bring forth your dwarf shrubs, and place them about the borders where there is room for them, looking well to the diversification of the various kinds, and providing for the best effect. Now, having made up your mind where they will look best, plunge the pots into the ground, covering the rims that they may not be seen, and regulating the surface of the ground as you proceed, that the border may look highly finished, and the garden complete, although not so full of flowers. This winter dressing is highly appropriate for geometrical gardens, but the shrubs should be all planted uniformly. If there are Hollies, let all the bed be alike, or else the sorts diversified in a uniform manner. If the circles of beds are six, let three be alike, and the other three alike; if the circle be eight, let four be alike, and the other four alike, however different the threes and the fours may be from each other. This is worth attention, and there is yet room for the display of taste.

Michaelmas Daisies, or tall *Asters* of all the kinds, should be supported, if in exposed situations: a stake driven down the middle, and bass matting tied from it round the stems, so that the branches may be tidy.

Pansies may still be planted in beds, and potted in sixty-sized pots, to be framed all the winter. The cuttings of such as we are anxious to propagate may be

struck, but they should be put in pans to be covered with hand-glasses, and placed on a little bottom heat, because the alternations of sun and frost would endanger them if exposed to the weather; besides, the bottom heat facilitates the striking. The potted plants must be put in the cold frame or pit, near the glass, and when the pots fill with roots shifted to larger. These may in the course of the winter be forward enough to occupy sixteen-sized pots, and bring early spring flowers as fine as in the open ground.

Perennials that have done flowering may be parted, and planted out in nursery-beds. A great number of herbaceous plants come under this definition. Where any have grown into patches too large for the place, they especially require attention; the patches may be removed altogether and parted, to be replanted; or, if you desire to retain a patch, chop some off wherever it can be best spared, or all round it, and leave only as much as you require.

Seedling plants of any kind, not yet disposed of, may be planted out if hardy, and potted if tender.

Tender Plants in Borders and Beds.—All the kinds of plants that will not stand the winter out of doors, and are required to be preserved, should be taken up and potted, and headed in, to be kept through the winter: the cuttings taken off may be struck for next year's stock. *Fuchsias* require a good deal of cutting down; *Verbenas* want cutting in. You can hardly have too large a stock of all bedding-out plants, so that you should make all the plants you can of the cuttings. All the plants that can be spared should be left

in the beds and borders untouched, because they will continue to give flowers till the frost cuts them off, and that may be protracted till Christmas, though it is not safe to leave any that are wanted after the middle of this month.

Very early Bulbs, such as Crocuses, Snowdrops, Daffodils, and some kinds of Narcissus, may be planted and potted now, though it would do any time from now till November.

Details of the Properties of Flowers.—We have in our published rules for estimating new flowers avoided all details that interfere with variety, and we cannot help smiling at the discoveries made by some who may be called special pleaders in the fancy. We have adopted general rules. In form we admit of no compromise; the outline, the smoothness of edge, the thickness of petal, the denseness (not the brilliance) of colour, the decision of marking—all these things we must have; but the man who pretends to tell us how this outline must be formed, what shape the inner portion of petals must be, how the thing is to be made up, and so forth, would reduce perfection to a sameness that nobody would tolerate. When, therefore, we see the small fry of floriculture entering into details that merely tend to limit the variety, we think it a pity they can find journals to insert their opinions; we would rather see them driven to set up a journal or a periodical of their own, because their crude ideas would then be only read by persons who agree with them.

French Flowers.—There was a time when the French Carnations, Picotees, Dahlias, and Tulips were the most outrageous carica-

tures of flowers that could be imagined; so long as they were something out of the common way there was no other qualification necessary; ugly or handsome, round, square, or three-cornered, no matter, they were described "accurately," with a careful omission of any point that would militate against them with the English growers; but they were nevertheless frightful objects, and only came here to be grown once and destroyed. Let us, however, except Roses, for they had a fair start with them, and kept it. Hundreds that they sent over were good for nothing, but there were some that made amends for all the disappointment occasioned by the less valuable. At present the French are acting upon our own notions of perfection. Their Dahlias are esteemed according as they approach our standard, and some are very beautiful approximations to what we esteem as good. The interchange of flowers has done a good deal towards this. Mr. Salter, of Versailles, now of North-end, Fulham, was the link which joined the French and English florists in the one great object; for he sent over the best of the French, and had back the best of the English, till they perfectly understood all our notions.

THE ROSE GARDEN.

The Roses of the summer kind will have made their growth, and the heads of standards will be very large. All the branches may be shortened to a foot or so in length, that they may not catch the winds so much, because, if left with all their growth on, they would be liable to be broken. If a head with all its summer growth on were unsupported, it would be

blown off its standard or stem—an accident by no means uncommon where the stake is fast to the stem, and the head not well secured or reduced in weight; but it will not be right to prune it close, for the winter frosts will often kill the ends of the branches an eye or two back. All the hanging branches on pillar, wall, festooned, or arched Roses should be fastened in their places or removed: nothing ought to be loose.

Cuttings may be taken of all the China and Bourbon sorts; in fact, of all the smooth-barked kinds. Let the pots in which they are to be struck be filled with soil, all but an inch, which inch must be sand; prepare the cuttings by taking off all the wood below the joint it is intended to insert, and put these cuttings into the sand low enough to touch the mould, but not enter it. The sand should be completely saturated with wet, and, when all the cuttings are in, watered to settle it close to the stems. These may be placed in slight bottom heat, and be covered with bell-glasses that touch the sand and keep them air-tight. Cuttings may also be placed in the open border, not more than two inches apart in the rows, and the rows six inches from each other. Trim the Roses that are still in bloom by cutting out weakly wood, but not materially affecting the branches left on, which should be the stronger ones.

Seedlings, and young Roses in beds, must be weeded and watered, and any that are flowering may be propagated or rejected as they deserve. It is useless to preserve any second-rate flowers; they are better thrown away, for they only perplex and vex the grower, who

had better never boast at all of raising seedlings than boast of raising inferior ones.

THE GREENHOUSE.

Prepare the houses for the reception of plants, which must be tied and trained in the form they are wanted before they are placed in the houses; examine their drainage; see whether any want a shift to larger pots. When such is the case let there be a sufficient difference in the size to enable you to thrust down the soil solid between the ball and the pot, or the plant will suffer. At this period the plants have, for the most part, made their growth and set for bloom; therefore, unless they are pretty full of roots, it is not desirable to shift them for they get occasionally excited into growth instead of flower; the leaf-germs, that would lie dormant until after flowering, become excited and grow, and, by taking away the nourishment from the germs of flowers, they decline, shrivel, and disappear in dust and scales. But we must particularise a few plants.

Azalea Indica.—These noble plants may be all placed in their pits, or, if too large for pits, in the cool part of the greenhouse. They will, however, be better kept cool all the winter. They want no fire heat, but they must not be damp. All the small newly-struck ones must be potted in small pots. If the plants are to go up pyramid shape they must be left to grow their own way, all but checking side-shoots as soon as they have grown enough, and stopping any branch that is growing too strong. Where you design the plant to be short and bushy the top must be taken off, when it is first potted,

within two or three joints of the bottom. The cuttings continue growing, but the plants which have made their growth after blooming are not to be excited into further growth on any account: they need but little water, and cannot be kept too cool. Seedlings must be weeded, and when large enough pricked out three or four in a pot round the edges, and then, when large enough, potted singly; therefore now prick out small seedlings, and pot those that are large enough, and shift any that have been previously potted and filled their pots with roots. Large specimens require to be regulated a little, because the beauty of the plant consists in a tolerably even surface, for the blooms will come at the ends. All the shoots, and any branches that protrude very much, must be tied up sloping higher, or down sloping lower, to bring the end even with the surface formed by the ends of the other branches. All through the winter they should be kept close in bad weather, and have all the air when the weather is fine.

Camellia Japonica.—These noble plants now show their bloom-buds plainly. Take the plants one at a time, and, by means of a stick or two and bass matting, constrain their form to the best advantage. If there be any straggling branch with no bloom on cut it off at once; but if there be a bloom-bud let it be till the flower comes out, when it may be taken to greater advantage. These may be carefully shifted if they require room, but not carelessly, for the buds may grow instead of bloom. Let these plants be so placed as to have plenty of room. Camellias may be placed on the

cooler side of the house, if there be one side cooler than the other.

Chinese Primroses.—While these plants are growing and filling their pots with roots continue to give them room. In shifting from one pot to another never omit the drainage. You need not break the ball of earth, nor remove the old drainage, but let there always be some fresh to each; stir the surface well, and see that the fibres are not damaged by stirring too low. These plants should be occasionally well watered, but not often. When the soil in the pot is saturated it will last a long time without any more, and the plant might almost flag before it is watered again.

Fuchsias.—The plants that have bloomed early, and have got shabby, should be deprived of all their weakly shoots, and the strong ones should be spurred in within two or three inches of the main stem at the bottom, and within half an inch at the top. They may then be placed in a dry part of the greenhouse, where they will not require any further watering for months. Those which have not begun to look shabby, but continue flowering, may be placed in a conspicuous part of the greenhouse for the sake of the flowers. All small plants may be kept growing, and due attention be paid to stopping them, or otherwise, according as you desire to regulate their shapes; but the water must not be lavished much upon Fuchsias at this time of year. The blooming plants absorb a good deal of moisture, and those in full growth do also; but, for the most part, these plants are not moving much, and therefore must only be watered when the

soil is getting very dry. The common run of Fuchsias of the ordinary size, and not particular sorts, may be put under the stage of the greenhouse, or in some of the pits, or anywhere else out of the way of frost and wet, all through the winter. Cuttings of Fuchsias may be taken and struck; cuttings already struck may be potted off singly in small pots; others that have filled their pots, and are in good growing order, may be shifted.

Geraniums.—Cuttings that have struck may be potted off in sixty-sized pots, and placed in pits or on shelves in the greenhouse. Those potted off last month, if not stopped before, may have their tops pinched off, to make them throw out side-shoots. The larger plants must be stopped wherever they are growing too fast. Let them have good growing room, for if they are cramped they cannot grow handsome. Some branches may be growing out of shape; such branches must be shortened. Examine all the drainages to see they are quite clear, and if not repot the plants.

Kennedys, and many other climbing plants, require occasionally to be unwound from their trellises and pruned. A good deal of old wood can occasionally be removed, and plenty of strong

young growth left to cover the trellis again. In retaining those that have been undone make sure of the bottom portion being covered, and if you can only go upwards a few inches there is never any difficulty in covering the upper portion. If climbing plants want shifting, it is a troublesome job, unless they are cut down very much, or left exactly as they are, and can be shifted with their trellis covered as it is. Climbing plants running up pillars, or planted out in the conservatory or greenhouse, may be cut in and regulated, so that the branches shall not be hanging about. You may strike all the cuttings.

Thrips.—These are troublesome little pests, and require to be kept under, or they soon render the plants shabby. In the case of choice plants, and those having moderately large leaves, it is quite desirable to look over them, and crush all of the insects that can be seen with the finger and thumb, then fumigate twice in close succession, and ply the syringe freely afterwards. Plenty of food at the root, and a damp warm atmosphere, are fatal conditions to both the thrips and red spider, which can only multiply in a dry atmosphere, and chiefly attack plants whose growth is becoming exhausted.

OCTOBER.

 CALENDAR OF OPERATIONS FOR THE FLOWER
 GARDEN, SHRUBBERY. AND GREENHOUSE

Alpine plants in pots should be plunged in a bed of sand or coal ashes, to protect their roots from severe frosts. The situation chosen for them should be moderately sheltered, and where they can, be covered up to protect them from heavy rains; but except in very severe weather they require little other shelter, and this is best afforded by a covering of some such open material as dried fern, the dried haulm of peas, &c. Nothing should impede a free circulation of air about them when not excessively frosty.

Alterations in contemplation should now be commenced in fine dry weather, and if there be rain come on so as to make the ground clammy, work it no longer, for you will do more harm than good. Form your paths, clumps, or borders with a line and pegs, or, if you design any particular shape that is not to be marked out by geometrical rules, lay a line along the ground about the form you want, and adjust it by pegging it inside or outside, according as you want to send it one way or the other. Dig the clumps two spits deep. If the bottom is good, turn it to the top; if bad, merely loosen it and leave

it at the bottom. If you are going to lay out a garden begin by digging, trenching, and levelling before you mark a road or a path, and then form these by laying a line down on one side, and adjusting it to the exact sweep you require. If you design the edging or verge to be turf, lay down the turf carefully, with the best edge to the path side, that the line may be kept perfect; then, with the help of a rod the length that is intended for the width of your road or path, lay the turf on the other side, so that the smooth line is kept, and the width preserved uniform all the way. Next form the shape of your clumps by first putting down pegs nearly to your mind, and then laying down turves with the best edge inwards, so as to mark the exact form you require. These being marked out, all the surface has to be covered close with turves, or, if on too large a scale for that, levelled with the verges already down, and sown with grass seeds, and rolled all over. The general planting must be left till November for choice, because many evergreens have not completed their growth; and in the fine weather planting is good from now until February, or even March, though

much better in November than any month in the year.

Balsams.—Gathering the seed is almost the only thing left to do with these plants, because they have passed their beauty; and if the seed be not wanted they may be turned out of the pots, beds, or borders as soon as their bloom fails.

Borders.—Clear off all decaying plants. Cut down the stems of flowering plants that have done blooming. Weed the borders, and leave everything clean and tidy, that they may require little else until the herbaceous plants and bulbs all appear in spring.

Carnations and Picotees ought to be all potted off, and in their winter frames; they must not have much water, but in dry weather let the glasses be taken off, and the plants have all the air. Of course, any that are not potted off should be attended to directly; and if you have more than you can pot off, plant them in beds a foot apart every way, and choose a high and dry part of the garden, as they are easily destroyed by damp.

Chrysanthemums.—The potted plants should be now taken into the house, or placed in pits, if they are not already secured. If the blooms show, or rather the buds, and the plants are in the least cramped for pot room, you may shift them to pots one size larger, because they will not grow much higher, and the new life which will be imparted to them will be thrown into the size of the blooms, but if the buds do not show, continue them in the same pots: they should have all the air that can be given on mild days. The plants in the open border may require support, especially if

they have not been shortened; one stake and a band of bass matting will be sufficient: place the stake at the back.

Climbing Plants.—Honeysuckles, Roses, Clematis, *Pyrus Japonica*, and other plants used to cover arbours, fronts of houses, walls, &c., should be now regulated, all the waste and straggling growth cut back, the loose branches intended to be saved nailed in their proper places. The fastenings of the main branches should be looked to, and if weak removed for stronger ones, for the winter weather tries the strength very much.

Crocuses.—This month you may commence planting out these early-flowering bulbs. The old-fashioned way was to plant them all along the edges singly, but they are more effective in patches of half a dozen, and much further apart. A patch of yellow, then one of blue, then one of white, are more effective, too, than mixing them, besides the stock being kept more valuable. There are new blue ones and new white ones, as well as a grey and some shaded varieties, all raised from seed in England, and if let out in this country will be at a good price for the growers to make stock from, and not in any quantities. Plant them two inches deep, and six inches from the edge, otherwise their green leaves will grow over, and destroy any edging you may have, whether it be Box or anything more or less valuable.

Crown Imperials.—These are soft and scaly bulbs, which ought to be planted as soon after they are taken up as possible, so that imported bulbs should be planted immediately: these should be planted three feet from the edge,

for they run up two feet high, and form a handsome bushy plant. There are various shades of yellow, and some nearly white: they may be planted three inches below the surface, and should be left in the ground two or three seasons without taking up.

Cuttings of the various flower-garden plants, as Verbenas, Jacobæas, Gazanias, Cupheas, &c., if not already planted, should be put into store pots, well drained, filled three parts full with a light open compost, and then covered with an inch of white sand, into which the cuttings are to be planted; the pots should be placed in a frame or pit where there is a slight bottom heat. They must not be too much crowded, nor at any time kept too damp, or they will become decayed. These cuttings, when rooted, are to be hardened off gradually to the temperature of a greenhouse, in which they may stand on a light airy shelf until spring. Cuttings put in earlier will have to be potted either separately in small sixties, or two or three in a large sixty-sized pot, to remain through the winter.

Dahlias should be taken up, and their labels be wired to them, the stump cut down to within four inches of the crown; they should then be placed in a dry outhouse, with their stems downwards, so that any superfluous moisture should run out of the hollow stalks; but if in any place which is not protected against frost, they must be covered with mats and litter at night, and not uncovered until frost has disappeared. As soon as they are fairly dried they must be placed where they are to be wintered: the very choice sorts of which you have no duplicates may be placed in dry sand in

boxes, or they may be potted in dry soil, or they may be hung up in the greenhouse or any apartment in which the frost does not or cannot reach them. The ordinary ones of which you have duplicates may, for want of a better place, be thrown in a heap into a dry cellar, or underneath the stage of the greenhouse. Wires are necessary to fasten the labels, because string would rot long before the winter passed, and the Dahlias would be almost useless without their names.

Deciduous Flowering Shrubs should be now removed, and planted where they are required on the borders, in the clumps, or on the lawn; the various kinds of Almond and Peach, the double-flowering Cherry, *Pyrus Japonica*, Persian, Siberian, and common Lilacs, the Guelder Rose, all the Thorns, scarlet and yellow Horse-chestnut, and all other ornamental deciduous flowering trees and shrubs. Prune them at the roots to remove all damaged portions, and lessen the shrubs in head to a reasonable form, because they are often of straggling growth until brought into form in these places. Dig the holes large enough to allow of the roots being spread out, tread them firmly in the ground, and take care that they are put no lower in the soil than they were when last growing: the collar of the root should be even with the surface.

Early Tulips, the most neglected and yet beautiful of spring flowers, should be planted in patches of half a dozen, all of one sort; but there are many sorts—rich scarlet, deep rose, light and dark yellow, white, and many-coloured stripes—which may be had in flower at the same time as Crocuses, or imme-

diately after to form a good succession: these should be planted three inches deep, and a foot from the edge.

Fancy Tulips.—Let all the small offsets, breeders, and out-beds of Tulips be planted in the course of this month: plant three inches below the surface, large roots six inches apart every way, and small offsets three inches apart in the row, and the rows six inches from each other. Turn the soil over from the best bed, and look well after grubs and wireworms; towards the end of the month return the soil to the bed, first having placed a layer of decomposed cow-dung two inches thick at the bottom; when lightly thrown in without pressing, and left in a ridge to throw off the water, it may remain to settle.

Half-hardy plants. which it may be desirable to preserve through the winter, such as scarlet Geraniums, Fuchsias, some of the dwarf Lobelias, Calceolarias, and any other subjects of this class, if the weather has permitted them to remain out all this time, should now at once be taken up and potted into pots as small as their roots can be coiled into, a few of the straggling branches removed, and the plants set into a frame, which should be kept rather close for a few days until they have partially recovered. They should have a thorough watering after being potted, and daily sprinklings afterwards for a fortnight at least, or longer if they do not get established. After they begin to grow they must have air, gradually increased till they are exposed in the same degree as ordinary greenhouse or frame plants. It is not in general desirable to be overcrowded in winter with these

potted-up subjects, but in the case of some of those named, and others which are more easily propagated by division than by any other mode, such plants often prove valuable either for planting as bulky specimens the following year, or sometimes for propagating purposes early in spring. Scarlet Geraniums should always be so preserved.

Hollyhocks may be cut down to within six inches of the ground, and remove all stakes for the winter. If any are to be parted for propagation, shake the earth out of the root, and carefully cut it into as many pieces as are required, taking care that there is a good heart to each piece of root; let these be planted in a store bed a foot apart, to grow into strength.

Iris.—This extensive family comprises tuberous and bulbous-rooted plants, the former with sword-like foliage, the latter various, some almost like rushes, others like grass. The tuberous-rooted may be parted to increase them this month; the bulbous may be planted. The English varieties of the bulbous-rooted *Iris* are far more beautiful than the original species. When you part the tuberous-rooted you have to retain one or more eyes or shoots to each piece of tuber, according to the size you require the plants, or the numbers you want to make: plant them from nine inches to a foot apart every way.

Narcissus.—This is a large and varied family, all interesting and beautiful, and should be planted in patches of three all of a kind; for it is a bad plan to mix the colours and sorts—first, on account of the deterioration of the stock; secondly, because they are not so rich in appearance.

Other Bulbs.—We have always considered that, on account of their beauty and season, bulbs in general deserve greater encouragement in English gardens than they ever receive. A border may be made up of bulbs that vie with the finest productions of the garden. The price may deter some persons from beginning; but all the Lilies, the Scillas, many Ixias, are beautiful in their season. Gladiolus, Hyacinths, and others, some of which we shall mention more particularly next month, are deserving of attention.

Pansies.—Any that are struck and not yet planted out should be disposed of directly, either in store beds or at the proper distances for blooming, or in small pots singly, to be ready for turning out in the spring or changing to larger pots. Potted plants designed for blooming early and under cover should be shifted to larger pots as they fill the small ones with roots, if room is scarce, or placed at once in their blooming pots if you have space to house them.

Peonies.—All the plants whose leaves have died down may be taken up and separated if wanted for propagation, but the tubers must be so separated as to leave a good germ to each; but the plant is not handsome until it has spread again a little, so that, unless number is wanted, they should not be parted too small. The Tree Peony should not be touched, for the larger the specimen the better and more beautiful.

Perennials of the hardy class, which are liable to suffer from the dampness of the climate if left exposed, should be now taken up, and potted to be preserved in dry airy frames. Of this class are all the Lobelias, which must have no

water until spring, and some of the Pentstemons which are ever-green with fleshy leaves liable to decay. As many should be preserved as may be wanted in the following season.

Phloxes.—Those out of bloom may be parted; any late ones that have not begun to die down may remain till they do; but for effect they are better in good-sized patches or clumps, and especially the tall ones. As the foliage turns colour on the blooming stems, cut the stems down close without interfering with the small shoots at the bottom.

Pink beds may still be made with advantage, but it is even better to do it in September; the plants get a firmer hold in the ground, and resist the frosts and changes better. Pinks in store pots must be kept pretty dry, and must stand on dry bottoms in the frames and pits.

Polyanthuses and Primroses.—Stir the earth between these, so as not to hurt their roots; look well for any stray slugs or snails in their neighbourhood, for no plants offer greater temptation than this fleshy-leaved tribe of plants.

Snowdrops.—The double and single may be planted in any situations where they can be seen well, for they are but small objects, and would be lost in some places. They ought to be two inches deep, and in patches of a dozen.

Sweetwilliams, Wallflowers, Canterbury Bells, and all the biennials and perennials that are required to bloom in certain places, should be removed now, unless the places are at present occupied by things not yet done with: the sooner all such plants are in their flowering places the better.

The Orange, White, and Martagon Lilies may be removed from one place to another, and if they are to remain a year or two, one good bulb in a place is enough.

Compost for Pansies, Pinks, Carnations, and some other perennials, should be light and rich. This may be formed various ways. One part loam, one part leaf-mould, one part rotten cowdung, and one part peat, forms a compost that will grow anything, but especially the above plants, in first-rate style.

Liming of ground to get rid of slugs and snails is very effective; but it should be applied only at daybreak, or in the evening, or when a dark cloudy day has brought out these pests from their holes, for every one it touches is destroyed. If spread over the ground when it is dry, and the slugs are in their holes, they will not come out to it; but the first shower of rain spoils it as a remedy, and therefore they are not destroyed.

Shading of flowers is always necessary if they are for exhibition; but the further off the shade is the better. Flowers covered close are affected in their colour, and this is detrimental to many, especially white and yellow grounds with coloured edges; for the latter, as in Dahlias, often disappear altogether, and are always less distinct.

THE ROSE GARDEN.

Gather all the seeds of Roses. Go over the summer varieties with a sharp knife. Cut all weakly shoots close in to the stem they proceed from, and if it was not done, but must be, shorten all the main branches to a foot or so at the most, but six inches will not

be too short, that the heads may not hold the wind. Make all fast to their stakes to stand the rough winds of winter. Dig between Roses or round them, but not enough to damage their roots. Remove all suckers from the roots, and all branches from the stock, if any have escaped notice and grown during summer.

Cuttings of Roses that have struck root should be potted singly, or, if of the hardy sorts, planted out in the beds.

Rosariums may be formed this month, and there is no period of the year more favourable for planting; and although, from the great reduction of the heads which necessarily takes place in pruning, the roots may be reduced a good deal also, there is nothing gained by the operation unless they are damaged in taking up.

Planting.—In each place where a tree is to be planted dig into the ordinary soil a good spadeful of rotten dung, and mix it well with the soil in about an eighteen-inch circle, and form the hole large enough to allow of the roots being spread out. Let every damaged part of the root be cut clean out, and any very straggling portions also be removed. Then place the plant in the hole, which must be filled up, and by raising the plant up and down two or three times a little, the earth will get underneath and between the roots, so as to allow of its being trodden over firmly. Then drive a stake into the ground so as to fasten the stem that it may not sway. Dwarf plants are treated in the same way, but the hole made on a smaller scale, and no stakes required.

Tender Roses should have their branches protected for the winter

by a covering of fern. For the dwarf plants this may be stuck into the soil among the plants; for standards it must be tied amongst the branches which form the head, the stock or stem requiring no protection; and when the plants are trained against a wall or trellis, the material should be thinly fixed over them in that position, commencing at bottom, so that the layers may overlap like tiles on a roof. They must not be so thickly covered as to exclude light and air: what may appear a very slight covering indeed affords a very great amount of protection. The Tea-scented, China, and Bourbon classes of Roses are those which most require this protection.

THE GREENHOUSE.

This department requires now to be kept as open as possible. All the plants will be better for air if the weather be at all mild; and if the weather be damp, light a fire and open the house to dry it now and then; but if the house be dry, and the weather damp, keep all close. Be particular in keeping all kinds of plants clear of dead leaves, and remove all litter and dirt from the shelves. Water must be administered sparingly, that is, seldom; for whenever a plant is watered the entire soil in the pot must be wetted. Many a plant has been lost by misunderstanding what it wants, and to be directed to be sparing of water was enough to make them give a little instead of a quantity; whereas it should be understood that the soil is to be saturated as completely as at any other season, but much more seldom. For instance, when a plant is growing it requires the

soil to be saturated or filled as it were once a day, whereas, if you are to water sparingly, it may be wanted only once a week. The effect of giving small quantities often, instead of large quantities seldom, is that in the one case the water reaches an inch down the soil, and all below that, though equally supplied with fibres, is kept dry, while in the other the whole soaks equally all through the pot whenever it is administered. On a judicious watering there is more depends than on anything that a plant requires. No month ought to pass without examining the ball of a plant, by rapping the edge of the pot on the bench so as to turn out the ball of earth into your hand, and then you can see whether it is all moist alike or otherwise, and also whether the roots are getting too much matted round the sides of the pot, for if they are, a shift to a larger-sized pot is necessary. Beyond this, the greenhouse only wants general attention to cleanliness, to a sufficiency of air, and to the efficiency of the drainage.

Calceolarias require much the same treatment as *Cinerarias*.

Chinese Primroses, which should be attaining almost to their blooming size, like to be put in the full light, and they should have plenty of air, in order that the blossoms may come of a rich colour. If they have not been recently shifted they will probably require repotting to carry them through the winter; and in this case it should be done at once. Great care must be taken with such newly-potted subjects, that they do not get soddened with water.

Chrysanthemums in pots are the better for the shelter of a greenhouse, or even a little forcing,

to aid the development of their flowers. When they are taken into a greenhouse at this season for the sake of their blossoms during the following months, it must be seen that they do not in any way damage less hardy plants, which they are apt to do if their decaying parts, especially the parts of the fading flowers, are not sedulously removed.

Cinerarias should be kept growing. Shift them as they require, and if they can be accommodated in a pit, where frost can be warded off, so much the better, until they are nearly in bloom. If not, they must be put on the front shelves in the greenhouse, near the glass.

Fuchsias in pots will now be getting out of bloom. They may stand exposed to the weather as long as frost keeps off, and even afterwards throughout the day-time, though protected at night. In this way they will become well ripened in the wood, which will throw off the leaves, and continue bare through the winter.

Geraniums continue growing all the winter. If they are wanted for very early blooming the shoots must not be again topped; but if they are to form good bushy plants to flower at the ordinary season, the young shoots must all be topped as soon as they have grown about a couple of inches

in length, and this must be continued for two or three months to come.

Insects. — As soon as the plants are all housed and arranged for the winter the house should be well fumigated, to destroy whatever insects may be lodged among the plants. Choose a dull cloudy day or night for this fumigation, and have it done twice on succeeding days, in order that it may be effectual. After this the plants must be well washed with the syringe or engine, and the extra dampness thus produced carried off by opening the house as much as possible the next mild day, aiding the evaporation, if necessary, by a gentle fire in conjunction with the ventilation.

Many persons find that there is a disagreeable green tint comes on the top of the soil on their potted plants in the houses, and this is generally the fault of the water they use. When this is the case they had better make an alteration. Rain water is always the best under any circumstances. Every reasonable expense should be cheerfully incurred to save all that can be caught, and none other should be used while a drop is to be had. In greenhouses and hothouses all the water from the roof should be caught and brought inside, that it may be always of the same temperature.

NOVEMBER.

CALENDAR OF OPERATIONS FOR THE FLOWER GARDEN, SHRUBBERY, AND GREENHOUSE.

Alterations.—Remember every day you protract any proposed alterations, or the making of additions, you run the risk of being foiled by the frost; for, when that once sets in, all work of any consequence is stopped until it goes again. Planting of deciduous trees and shrubs should be persevered in till done. Evergreens may be planted out, but will take no harm for a while. All the trenching, digging, making roads and walks, and planting ornamental timber may go on with all reasonable speed, for any fine day lost is irrecoverable, especially if unfavourable weather should afterwards set in. Wet is as bad as frost, and often does more mischief.

Anemones may be planted in beds or patches, three inches deep, and six in a small patch, to remain there, or six inches apart all over the bed or border; and let the earth be bruised well that covers them.

Auriculas.—Take off the dead leaves, keep the frames clean inside, and give no more water than is necessary. Let them have all the air they can on mild dry days, but when there is any fall of wet let the glasses be propped, so as to keep off the rain.

Box Edgings.—The whole art of

laying down a Box edging well consists in forming the ridge against which it is to be planted true, level, and hard; and in cutting the Box into small shreds, not only that a little may go a long way, but that it may be weak enough to obey the pressure of a little earth to keep it home in its place. We have seen Box dibbled in, and there are works which recommend it; but there is no way so true, and in all respects perfect, as to form your bed, border, clump, or whatever else you choose to edge with Box, the exact figure you want it, by hard treading it on the edge, and putting the soil on until it is quite level, and trodden hard; then cut the soil away from the front, or pit side of it, in a sloping direction, exactly the form you require. The top being level, and the sloping front cut even and ready, put small bits of Box close by the side of each other, so that there is no vacancy between them, nor any lapping over each other, pressing the loose earth in front as you go on, to bank the Box into its place, which is with the green half an inch above the top of the soil; while the patch is afterwards gravelled, so that the gravel comes up on the path side exactly as high as the soil on the other. In digging the beds after-

wards the gardener must cut sloping away from the Box, lest he should damage the plantation of Box, and loosen the roots.

Carnations and Picotees.—The health and vigour of these plants depend mainly upon their being kept dry and cool through the winter; not that they must absolutely want water and not have it, but that it should not be given them a day sooner than they want it. Pick off any yellow leaves, and keep the frame clear of weeds and dead leaves, or decaying matter of any kind.

Chrysanthemums in bloom out of doors should have their dead and decaying blooms cut off at once, and the best ones be left to come forward still. In sheltered places on walls, and frequently in the open gardens, this family of flowers forms a bright spot in the dreary autumn.

Crocuses, and many other of the smaller bulbs, if not already planted last month, as we directed, should be planted this, and according to the advice given already.

Evergreen and Deciduous Shrubs.—All the layers and suckers should be taken up and cut off, to be planted in nursery-beds or elsewhere, according to your wants. Lay down any branches that are low enough, and can be spared: they only require to have a longish slit, cut not quite half way through, and the under part of the branch; bend this down into the ground, and peg it there an inch or two under the surface. These will be young plants fit to take off the next autumn. All evergreen and deciduous shrubs will thus form new plants; many, however, throw up suckers—that is to say, branches from their roots—and if these are dug down to, and part of the root

taken up with them, they make plants at once. Many seeds of deciduous plants may be now gathered, and cuttings of all kinds may be taken, though many think the spring quite as good. If there be any straggling branches of the shrubs that can be improved by shortening, do not be afraid of the knife, though care should be taken to spare those branches which show bloom-buds until after the flowering time.

Hardy Climbers may at once be pruned and trained. No general rule for pruning can be given, as the habit of each particular plant must determine the actual operation; but generally prune rather hard, especially in the case of all plants that blossom on the young or current season's growth. Hardy climbers are too often neglected in this respect, and become masses of confusion. If the plant produces its blossoms from the one-year-old wood, be careful to retain a supply of the best ripened young shoots all over the plant. In training use small shreds and few nails; but the shreds must not tightly girt the shoots. The shreds are made of narrow strips of cloth, cut into lengths proper for the different sizes of the branches. The pruning of the less hardy sorts must be deferred until the spring.

Herbaceous plants generally may be parted, if not parted last month, and either placed in the borders or in nursery-beds.

Hyacinths in Beds.—There is nothing more striking and beautiful than a well-arranged Hyacinth bed. The colours are various: light and dark blue, light and dark red, white and yellow. Let the arrangement be so that you do not have two of a colour, nor even two

of a shade close together. Single and dwarf kinds make the best general bed, and those who have geometrical beds may so contrive them as to have flowers two months before the usual period by depending on bulbs. Hyacinths, in these beds, must be all of a shade in the same bed; but, if you want effect, you may have the lightest of the reds inwards, the darker ones further out, and the darkest furthest. The same with the blues: there are several shades, and admirably calculated for effect. These, planted in their beds nine inches apart, would leave room between for anything else to follow, and the Hyacinth bulbs might, on their removal, make room for the third succession of some kind. For instance, Tulips may be planted between the Hyacinths, and the Hyacinths taken up while the Tulips are in flower may make room for potted Stocks, or potted Nemophila, or for plants of Verbena, which will flower by the time the Tulips are off, and so keep up the bloom of the parterre. Hyacinths in single long beds must be arranged so as that no two of a colour come together.

Newly-planted trees and shrubs, especially if at all tender, should be mulched; that is, the surface of the soil, to the extent occupied by the roots, and up to the stem, should be covered by a material which will keep frost from penetrating the soil, and thus favour the growth of the recently-disturbed roots. What the covering is is not material; such as littery straw, moss, peas haulm, or even sawdust and ashes may be used. It is very important, also, that newly-planted trees should be staked, so as to prevent their being moved to and fro by the wind.

Pansies in beds are apt to be disturbed by frosts and thaws; the changes expand the earth, and frequently bare the roots of small plants. To prevent this you may be at the trouble of covering with mats or litter in frost, and keeping them uncovered in mild weather; but, unless they are very choice, few take the pains, as they are by no means a tender plant. But they must be set to rights at every thaw, and fixed firmly.

Pinks in their beds are apt to be disturbed by worms, cats, frosts, and thaws: they must be examined occasionally until they are very strongly rooted in the ground, and, where any are disturbed, they must be pressed into their places, with the earth close about them; and clear them of weeds while weeds are small.

Ranunculuses may be planted six inches apart in good earth, well worked, but not mixed with dung recently. A good layer of rotten cowdung may be placed in the bed at a foot deep, but the earth in which the tubers are placed should be loam from rotted turves, or clean loam from a pasture one part, and leaf-mould one part, which is about an equivalent: any well-worked earth from a kitchen garden will be well adapted. The easiest way to plant these autumn-made beds is to draw drills the length of the bed, three inches deep and six inches apart. You may then place in the tubers with a slight pressure, six inches apart in the rows. Others draw the drills across the bed six inches apart; but the easiest is lengthways, and it can make no difference unless people desire to grow a row of a sort, when it is better to cross the bed, because

the sorts are seen distinctly when one sort crosses the bed. This does not allude to the fine sorts, which are planted in February, but to the surplus stock required to increase well, and to give early flowers. The fine sorts are not fit to be risked in the ground through the winter.

Shrubberies may be dug now where this plan is practised; but it should only be done in mixed borders, where flowers are planted. The continued digging of the soil destroys the surface roots, greatly to the detriment of the plants. Clumps entirely occupied by shrubs should show no cut edge of raw earth: if they are on grass the grass should grow quite under them; and if they are surrounded by gravel this should be continued beneath their branches.

The Beds and Borders may be dressed out now with dwarf evergreens in pots, which should be plunged below their rims. Make a diversity of them, and in the geometrical garden there is great room for taste. The variety of foliage is immense, and the smaller the plants the better the effect, so that there be enough. *Hollies* of varied hues, *Cedars*, *Arborvitæ*, *Yews*, *Berberis*, *Boxes*, varied and green, *Alaternus*, striped and plain, and fifty other handsome-growing shrubs, which do well in pots, are adapted for this autumn dressing.

The Tulip.—The most important flower that engages the attention of the florist this month is the Tulip. The second week is the latest for planting if we have our choice; and the arrangement of the bulbs for planting is made in boxes which represent the rows on the bed. Tulips are planted in four-foot-wide beds, six inches

apart every way; and this gives us seven across the bed. The beds, therefore, among common observers, may be said to consist of seven rows of whatever length the bed may be; but the custom is to call the seven which go across the rows; and then the bed is said to consist of so many rows. Thus a bed twenty-five feet long should contain fifty rows. The proper manner of arranging the flowers, in these rows of seven, is to have three pairs of flowers, and a centre odd one; and Tulips whose natural growth give four different heights are used. Those are called first-row flowers which are the most dwarf, and mean outside-row flowers, such as the first and seventh; second-row flowers are those something taller, and mean second and sixth; third-row flowers are taller still, and are used for the third and fifth rows; and middle, or fourth-row flowers, which are the tallest, are used in the centre. But of all these first, second, third, and fourth-row flowers there are three distinct classes, called *Roses*, *Byblomens*, and *Bizarres*. The first have white grounds, with red marks of all shades, from crimson and scarlet to pale rose or pink; the second have white grounds, with purple marks, from deep purple, almost black, to light lilac or lavender; the third have yellow grounds, with any coloured marks, from nearly black to brown or red. In arranging the flowers, therefore, we should not only have pairs of the same class opposite each other on the two sides of the centre, but we should have the same flowers—that is, the same varieties—on both sides. One of the oldest rules for planting Tulips was to prevent two of a class coming together in

a row; therefore the arrangement was thus :—

Ro.	Byb.	Biz.	Ro.	Byb.	Biz.	Ro.
Byb.	Biz.	Ro.	Byb.	Biz.	Ro.	Byb.
Biz.	Ro.	Byb.	Biz.	Ro.	Byb.	Biz.

and so changing from left to right, or right to left, as they pleased, to go through all the bed. Our only objection to this was, that it wanted uniformity. It is true that no two of a class come together all through the bed; but it is equally true that if you stand at the end you observe that you have a Byblomen on one side next the middle flower, and a Bizarre on the other; and thus it runs all through the bed. Our mode of arranging is to have everything uniform: if the first is a Rose, the seventh must be; if the second is a Bizarre, the sixth must be; and if the third is a Byblomen, the fifth should be also. The difference in the arrangement would be thus :—

Ro.	Byb.	Biz.	Ro.	Biz.	Byb.	Ro.
Byb.	Biz.	Ro.	Byb.	Ro.	Biz.	Byb.
Biz.	Ro.	Byb.	Biz.	Byb.	Ro.	Biz.

But those who can afford it, and take great pains with their beds, should go further than this, and have all the flowers paired as to variety, as well as to class; that is, suppose there is Louis XVI. in the centre, the Rose on each side might be Clarendon; the next to that, on each side, should be Polyphemus; and the Byblomen, on the outsides, Reine de Sheba, or any other named flower of a proper class you please, but both alike, so that all flowers should be grown in duplicate. In forming a bed of Tulips, therefore, you should buy an equal number of first, second, and third-row Roses, Byblomens, and Bizarres, and half the number of middle-row Roses, Byblomens, and Bizarres.

For instance, say you want a bed of sixty rows, or thirty feet, which is a very pretty and effective length, you must in that case have twenty each of middle-row Roses, Byblomens, and Bizarres, and forty each of each of the other heights, or rows; because, when grown in duplicate, there are two of each to one in the middle. The boxes or drawers in which Tulips are arranged for planting have seven partitions one way, and no matter what length the other; but they are generally made to hold eight or ten rows. The roots are arranged in these drawers, which are numbered 1, 2, 3, outside, according to the number of rows. When you plant, lower the soil on the bed to three inches lower than you intend it to be when finished; level it, and draw the seven lines one way six inches apart, and the cross lines the other six inches apart, by means of stretching a line lengthways quite tight, and pressing it into the soil with the back of the rake, so as to make a mark; but the cross lines may be made with a straight piece of wood long enough to reach across pressed into the soil. Where these lines cross place the Tulips, gently pressing them half their bulk below the surface; then put on the three inches of soil. The bed thus planted will need no further attention. Keep the outer Tulip beds clear of weeds.

Turf may be laid to form lawns or verges while the weather continues mild. It cannot be done in frosty weather, neither should the roots (which are towards the outside of the turf as they are rolled up for removal) be exposed to frost, nor too long to drying winds.

THE ROSE GARDEN.

Planting of Rosaries comes on now; and let us recommend those who pretend to have a Rose garden to preserve some form and general plan—to make something like a design, and not content themselves with merely putting a Rose here and a Rose there. If they can do nothing better let them form a bank of Roses each side their single walk, by putting in dwarfs in front, two-feet Roses behind, and three-feet or four-feet Roses behind them. This is an elegant way of forming a Rose garden, without any pretension to novelty, and with every regard to effect. The front, or dwarf Roses, must be picked for their slow growth, because many of the freely-growing Roses would ramble about in all directions, and climb about anything. The Dwarf Crimson, and others of that habit, are proper for the front row within a foot of the edge. The Standards can be had of any height, but regard must also be had to the habit of the Rose, which would be equally out of place if of a rambling kind. Those who supply will always give the proper kinds if you tell them what they are for. The climbing Roses must be well fastened, and a good deal of the loose and superfluous branches cut away, if not already done. Look well after the last month's directions, and attend to all that has not yet been done. Indeed, if the last month's affairs were well brought up, there would be little to do; but a good deal of planting is necessarily left for November, from the difficulty of getting all the plants that are required in October. Some are hardly ripe enough to move in October, others are in great demand but the

sooner they are procured and planted the better, when once the leaf falls, or the tree is inclined to rest.

Tender Roses.—Where the tender sorts, such as the Chinas, Tea-scented, Bourbons, &c., have not been protected, it should be attended to before severe cold sets in. The roots should be mulched, and the branches shielded by some such open material as dried fern or peas haulm. Rough wicker baskets are sometimes used for this purpose, and they answer well as a covering for the branches: they are set over the plant during the period when protection is necessary. One great advantage attending them is, that they are easily removed and replaced.

THE GREENHOUSE.

The further we get into the winter, the more cautious we ought to be of watering, and the more air we should give when the weather will permit it. Preserve everything from damp and dirt. Keep the shelves clear of dead leaves, and every now and then brush out all the corners, to get rid of the vermin and their eggs.

Calceolarias.—The young plants require to be growing all the winter, and must therefore be kept regularly watered, and placed beyond the influences of frost. It is not desirable to repot at this season.

Camellias will begin even at this period to open a few straggling flowers, or rather, straggling plants among the collection will occasionally bloom. When the branch on which the flower happens to be can be spared, let it be cut off with the bloom on it if wanted, or, if preferred in the house, let it come off directly the bloom has decayed. Many plants which could have been

advantageously pruned are allowed to remain, while, if there be a flower-bud on the shoot that should come off, it is such as those that we allude to.

Cinerarias.—The larger plants—or at least the earliest ones—should have had their final shift for blooming. All that remains is to keep them in the full light, and as far as possible free from insects, which in a few days accumulate vastly if at the first neglected. When the blooms have nearly reached the period of expansion it is a good plan to give a little manure water, which may be made from soot, mixing the ingredients thoroughly, and applying only the clear liquid after the subsidence of the solid matter.

Fire-Heat.—Great care must be taken to keep frost out; but it is better when it can be done by covering up close than when it wants fire heat. In hard weather there must be a fire occasionally, and so also in long wet weather, for the house gets damp, in which case light the fires, and when the glass gets up a few degrees open the top lights to let out the damp. A few hours' firing dries the place, and does everything good; but heat and damp draw the plants too much.

Under the frames of the greenhouse, or rather the stage, is an excellent preserve for almost everything that wants protection from the frost; but there is an objection to the drip which comes from watering the pots. A piece of waterproof calico thrown over them throws off the wet, and forms one of the best means of protecting Dahlias, various tubers not quite hardy, plants that are dormant, such as Dahlias in pots, and many other things.

Frames.—At this season the cold

frames and pits employed for the protection of half-hardy plants, and for sheltering such of the alpinists and perennials as need protection, require to be carefully watched, in order to guard against damp—the most insidious enemy of such plants—and to which, owing to the dampness of our climate, they are greatly exposed. The lights must be kept off during all fine weather, and in dry weather, even though it may be rather cold, provided there is not a keen and nipping air. Even under such circumstances the frames must not be closed entirely, nor in wet or damp weather, but must be tilted up more or less to admit of a change of air, the lights being, however, never opened against the wind. The difficulty of admitting as much air as is requisite, under such circumstances, has led to the provision of ventilators in the back and front walls of frames and pits, and these are exceedingly useful contrivances. A thorough airing can be given without so opening them as to admit rain or keen winds. The ventilators are best made in the form of small wooden slides. Of equal importance to plants of the half-hardy class is the provision of a dry bottom, and the avoiding of spilling any water within the frames during the process of watering. A damp bottom leads to dampness of the atmosphere, and confined dampness of the atmosphere is just what is so fatal to tender plants. Hence the advantage of elevating the plants on an open platform *above* the floor, and of providing ventilators to secure a current of air when requisite *beneath* this platform. The plants themselves require to be frequently picked over, to remove all dead or decaying leaves,

&c., and to see that the soil continues in an open healthy state—not water-logged, nor moss-bound. Whenever any of the plants start into vigorous growth, as they sometimes will do, and produce branches which are liable to get straggly and out of order, such branches should be topped, and the whole treatment should be directed to maintain the plants stocky, sturdy, and hardy through the winter months.

Geraniums are growing fast. If any of the branches are shooting too freely pinch off the ends, and in all cases regulate their shape a little by checking them where they are going out of form.

New Holland Plants.—All the hard-wooded plants which are growing must be well examined, to see that their drainage is clear, and their soil moderately moist. Water seldom, but effectively, and when they have been all watered shut them up from the air.

Primula Sinensis, Chinese Primroses.—The plants of this family are now becoming gay, seedlings are beginning to bloom, and even

common things are permitted to remain in the house, because they are flowers at a time when other flowers are scarce; but they may not be of sufficient merit to be worth keeping after they have done. The choice florist will, however, preserve none but good single ones, and propagate them. A stock from choice well-grown kinds is very interesting, and the double ones are really beautiful objects. These must have plenty of water as they bloom, for they absorb a good deal; but want of free draining soon settles them, and they rot and die almost before it is discovered. It is a common thing to see these in forty-eight sized pots; but they can be grown in one season from seed large enough to fairly occupy a size twenty-four, or even sixteen.

Water.—Never depend on tanks for rain water under the surface to water plants with, unless it has stood long enough to get the temperature of the house. It chills and does mischief much sooner than is expected, and should always be avoided if possible.

DECEMBER.

CALENDAR OF OPERATIONS FOR THE FLOWER GARDEN, SHRUBBERY, AND GREENHOUSE.

Now we arrive at a period when all directions must be conditional. It is in this country as likely to be wet and warm as frosty and snowy, and, which is far more important, to change from one to the other in a few hours. It is necessary, therefore, to make preparations for protecting by some means all that will not bear such great changes, and never to trust a single night to the mild weather continuing. Frequently do we have four-and-twenty hours' frost, and a total change to warm, close, damp weather for days; and *vice versâ*, from warm to frost. These changes injure even hardy things, and always disturb small plants, whether it be Pinks, Pansies, Carnations, Picotees, small Polyanthuses, or Primroses; in short, nothing small, however hardy, is secure from being uprooted by the contraction and expansion of the soil, which inevitably accompany these changes. We have simply, therefore, to make up our minds whether all these things shall take their chance or we intend to prevent it. In the latter case we must have hoops and mats, litter, cloth, or some other material to cover them with; in the other, the ground looks neater, for we do not require to have anything ly-

ing about for the purpose: we will, however, touch upon various modes of protection. First, then, we will mention—

Dry Litter.—Peas haulm is the very best of these if well harvested and hardened. It lies much lighter, and endures the wet much longer than any other kind of litter, so that really good peas haulm will endure three months of wet and changeable weather without becoming close or soft and rotten, but it should always be spread lightly to dry when the weather permits. This should lie all ready between the beds, and be every night spread upon the beds to be protected, and in frost it must not be removed. There should be a sufficient quantity to lie four inches thick on the bed to keep out frost; less than this would not be effective. Straw is the next best, perhaps, but it should be broken so as to lie rather light and loose, and not be used in its straight length, for it would lie too heavy. Tares, hay, and even the long litter of dung are used, but we prefer the first to anything.

Hoops and Mats.—If beds are to be protected with mats it is requisite to place hoops across the bed, or bent sticks of some kind from

side to side, arched over as low as practicable to be clear of the plants—say three feet apart from end to end; then tie a straight lath or rod along the tops of the hoops, and one or two lengths on each side. This prevents the mats from falling through, and allows of our throwing them over quickly. Of course the hoops are continued there, but the mats removed every morning except in frost, and sometimes in cold dry winds, which are nearly as destructive. If the frost be kept completely out, all the young plants get on wonderfully, as compared with those that endure the changes.

Transparent Cloth.—This is far superior to matting, inasmuch as the plants never suffer for want of light; and the benefit of this is chiefly felt when a continuance of frost prevents us from removing the covering for a week, sometimes at the end of which time, if under mats or any other dark covering, the plants will have turned yellow, and drawn very much. In pots and frames, which are sometimes not uncovered for weeks, it is of the highest consequence to have light transparent waterproof cloth instead of mats; and the plants under cloth scarcely look the worse for a month's confinement, whereas if dark they would turn completely yellow and weakly, and scarcely recover the effects for months. There are various devices for protecting single plants: the best perhaps that we know of are the

Wicker and Basket Protectors.—These may be made of various forms. The smaller ones are in the form of a bee-hive, and are merely lifted on and off; larger ones are made in two halves, so that they may be put together sideways, and

fastened with hooks and eyes to each other. The material of which they are made depends on the quantity of protection required. There are many shrubs, the *Magnolias* for instance, which are all but hardy when once fairly established, but which, while young, cannot stand a very hard frost: these ought to be protected until they are seven years established in the place where they are to remain. By having the protectors made in two parts, which have to be applied sideways, and join evenly, they may be made of any size, and are by no means difficult to put together, nor are they very unwieldy, even if of larger dimensions. Six feet high and four feet through would not be inconvenient to handle, and there are many shrubs which, if protected up to that height, would require it no longer. *Rhododendrons* would require them shorter and wider, but they should only be open wicker, like a fowl-basket, because they should be open in mild weather, and such protectors well made would not be unsightly. The mats or cloths need only be thrown over them at nights and on frosty days. The *Araucarias*, that will stand when once well established, are frequently injured so much in their young days as to scarcely recover at all to become handsome; these, therefore, especially want protection for the first few years.

Wall Protectors.—Many half-hardy climbers require protection. If mats are placed, that is, hung against the wall, they will do very well for deciduous plants, but for evergreens the material should be impervious to wet, and transparent, to admit light, otherwise the foliage would be damaged; it should also be closed at the top,

bottom, and sides, however loose it may be in the middle.

Other Means of Protection.—The most complete of all is glass in various forms, from the common hand-glass—to take off and put on as the changes of weather or the approach of night or morning dictate—to the porous pots, green-houses, and conservatories on the largest scale, in which artificial climates can be commanded at pleasure, because glass excludes no light, and keeps in the natural warmth of the earth it covers; at least, it prevents the escape of the natural warmth except by slow degrees, and if the glass be covered during the hard frost it is still more preserved. For all greenhouse plants it is desirable to avoid the necessity of making fires, if possible, by covering, to keep in the natural warmth, or, as some people describe it, to keep out the cold, instead of having to use artificial heat. The month of December calls upon us for the greatest caution, as the frost is beyond measure treacherous. We may have the garden at sunset wet, close, and fifteen degrees above frost, and in a short space of time find the open air five degrees below it. Now, this is trying even to many hardy things, for the changes are too rapid. This, however, dictates to us the necessity of always leaving the garden safe—the litter laid where it is required, the glasses all in their respective places. Precautions against frost should be taken every night as if it were certain before morning.

Uncovering protected Plants.—In mild weather give everything the benefit of the air and sun. Uncover at daybreak, that they may lose no daylight.

The routine business of the gar-

den for the four months of November, December, January, and February is utterly dependent on the weather, but the same in similar weather all through. It is impossible to give direct instructions, because it is possible that the frost may defeat us in any one or more of them in all our intentions. All the duties of the four months might be comprised in two words—cleanliness and protection; but there are certain things continued through all mild weather and other certain things necessary in all frosty weather. We are writing of out-of-door business. Keep clear of weeds and vermin; dig the ground again as you clear off the decayed flowers; turn out the earth of the flower-beds to sweeten, and frequently turn it over, but especially when it is frozen on the surface. A few particular classes of flowers may be in want of some management.

Annuals that were sown in the autumn for early flowering in the spring, or such as have sprung up self-sown in the beds or borders, where they can be retained in patches for the sake of their earliness, are the better for some degree of protection in very severe weather. With all such plants it is, moreover, very important to attend to thinning in due time, so that the plants may grow sturdy and strong, and not be drawn up spindly and weak from being overcrowded, which renders them much more susceptible of frost than when they make their growth after being properly thinned. This thinning is required as early in autumn as the plants become at all thick on the ground, so that they may have the advantage of exposure to all the sun and light which are at that season available.

It is these patches, thus thinned out, that we recommend to be protected; and the best means of sheltering them is to stick into the ground about them small pieces of such open spray as spruce-fir branches, or the fronds of the common bracken, cut in summer and dried in readiness: two or three of these pieces, a foot or so in height, placed about a patch of annuals, afford a great amount of protection, and, if not put too close about them, keep off the light but very little, and do not at all obstruct the circulation of air. The ground about such tender subjects should be frequently hoed in winter, this being done in intervals of dry weather; it helps to keep the soil open and porous about the plants, so that they are less affected by the rains. Wet, it should be remembered, is the chief enemy of the autumn-sown annuals, a great many of which will keep in good health during winter, if they can be kept moderately dry.

Annuals in Pots.—Those who are very anxious for an early spring display of blossoms generally take some pains to preserve a few autumn-sown annuals in pots, either sowing for the purpose, or taking up from the borders some of those which are self-sown. They should be planted two, three, or more, in a sixty-sized pot, and the pots should be placed in a frame. It is important, at this season, to be very cautious in the application of water: the soil must be thoroughly wetted when they require it, but no water should be spilled on the leaves, nor poured carelessly among the pots. All rain should be excluded by keeping the glass sashes over the plants, tilting them up at the back so as to admit air, and

at the same time assist to throw off the water, which is impeded when, as is sometimes the case, the lights are tilted back and front alternately, for the sake of producing a draught of air: it is better during rain to tilt only at the back. In all dry weather such plants must be quite exposed. Keep them as dry as possible, short of allowing them to droop, and as airy as possible consistent with dryness.

Auriculas.—In any dry weather short of frost give all the air you can by taking the lights off, but be quite certain about the temperature, because, although they will stand a good hard frost without any apparent injury, the bloom will get checked by a frost, if not provided against.

Bulbs in general are grossly mismanaged, and nobody very clearly understands why. Look, however, at the geometrical gardens of England, and although bulbs would keep them in flower all the year, or best part of it, no one sets an example that can be elsewhere followed. They may be dear as compared with some things; but when they can be taken up at any season that they are not growing, there cannot be a question that there are many who spend much more money with less than half the true value being attached to their purchases, and that our gardens would be greatly assisted in the supply of beauty by a timely addition of something worth notice in the shape of bulbs.

Dahlias.—Occasionally examine the tubers, and if there be any very scarce one which is likely to be wanted in great quantity pot it at once; also pot any that seem inclined to shrivel or rot, and keep

them in the greenhouse or pit free from frost.

Gravel Walks.—When the gravel is soft and spongy get two sieves, one that will not let a horse-bean through, and the other somewhat larger, that will take away any but one size bigger. Gravel thus cleared of the large and of the small should be laid on, and rolled in every time any wet comes, until the surface is as sound as a stone.

Hyacinths.—The propagation of Hyacinths in Holland is hastened by cutting the bulb in half horizontally, and offsets are developed in great plenty. All the top halves of the leaves being gone, and the bloom destroyed, the whole vigour of the root goes to multiply the offsets, of which there is one at the base of every leaf, though it is often dormant until excited by driving all the nourishment to it. When a cut Hyacinth of this description is taken up there are generally some very fine offsets, and the larger of these are mostly ready in another season.

Pansies, Pinks, Picotees, and Carnations in pots, under glass, must be kept moderately dry—we speak of those in store pots. The Pansies in larger blooming pots should be put in frames by themselves, that they may be kept growing, as the object is the preservation of early blooms, and they must not have a check.

Tulips, and all other flowers in beds, unless perfectly hardy, must be protected with hoops and mats, or litter of some kind, as the ground once frozen to the bulb damages the flower, although it may not destroy it.

THE ROSE GARDEN.

Little more than following up all previous instructions has to be

done this month, except that, as those instructions comprised planting, removing, and making Roses a feature, a few words to impress the leading objects on the mind will not be out of place. Great pains are taken to produce strong growth, and certainly, if size is to govern, the flowers come the more noble for the increased vigour of the plant; but it is quite certain that in the natural state the brier grows on very questionable soil, and we have frequently seen them dug out of that which seemed exhausted by the roots of thorn or other hedge plants, and was as dry as snuff. Again, we have seen them budded while growing wild, with a view of removing them after the bud was safe, and the growth was as vigorous as could be wished; but these Roses suffered much on their ultimate removal, and perfectly convinced the experimentalist that it was a great loss of time. The fact is that the roots of the brier seek food at a very considerable distance from the trunk of the tree, and it is impossible to avoid losing a good deal; therefore it is necessary, in procuring the briers, to prune the roots within a moderate compass, and to thin off all the branches, so that the briers become so many upright sticks. These planted in good ground recover their roots, because the growth of the stock is limited to two or three single branches to bud on, and by midsummer, or a little after, they will have advanced far enough to bud on. This done, the ends of the branches are cut off, and a very little growth is allowed beyond the bud, and that only while the bud is uniting. After this the entire growth of the stock is thrown into the bud,

by taking off all the other shoots as they appear. There has been some difference of opinion as to the treatment of the bud when shooting, and a question is raised, which may as well be discussed here as in the proper month for the operation. The same thing has been mooted as to fruit trees. The bud of a Rose, if left to itself, will grow on a single branch several feet, and unless supported by something would be assuredly blown out of its place and destroyed. The question is this—Ought the bud to be permitted to waste itself in six feet of wood, which has to be cut all away; or by judiciously stopping it as soon as three or four eyes could be secured, should the strength that would be wasted in six feet, to be cut away be dispersed or distributed in four or five branches towards forming a head? This would save nearly a year; and the only pruning required would be to cut away the smaller weak branches, and shorten the others to two eyes each. But the generality of nurserymen allow the single eye to grow as long as it will, and we have seen them at Mr. Rivers's, of Sawbridge-worth, with six or seven feet of sound ripened wood grown from an eye in one season. This cut back to a certain number of eyes makes as many branches the second year; but it has been ascertained that a more commanding head can be formed, and if left unpruned the second season the same number of branches will continue their growth, and the shortening may be left till the next season. When the growth is very strong, which is indicated by the first six inches of a shoot, it may be safely checked by pinching off the end; when it is weakly let it

all grow. Roses in pots and stoves, being forced, must be well smoked and syringed, and be changed from smaller to larger pots, according as they fill the pots with roots.

THE GREENHOUSE.

The deeper we get into winter the more care do we require in the greenhouse. The sole attention should be devoted to keeping out wet and frost. Dampness is very fatal if not removed in good time. To prevent dampness all dead and yellowish leaves should be removed, not only from the plants, but also from the shelves and floor: every part of the house must be kept very clean and dry. Cuttings of all the kinds of plants may be taken off and struck, and such as are struck should be potted singly in pots, and treated according to their intended form.

Amaryllids may be examined, and such as indicate growth may be repotted, and set in a common hotbed.

Azalea Indica.—Young plants should be shifted from time to time to larger pots, and seed may be sown in pans or boxes, or wide-mouthed pots, and placed in the greenhouse.

Bedding-out plants whether kept in pits or in the greenhouse, may be put out singly in pots as soon as they strike; and when once established they need have but little water through the winter. The less growth they make the better; but if they take to growing, remove the tops to strike, so that you double the number of your plants, and improve the original ones by inducing dwarfness and a bushy habit.

Calceolarias require to be carefully kept from the frost, and at

the same time should have all the air possible to prevent their becoming drawn. Be careful in watering not to wet the foliage nor unnecessarily spill the water about the plants; and let it be done in the early part of the day. These attentions are the more necessary in frosty weather than in mild weather, but it is best at this season to be ever on the guard: and they apply as much to all other greenhouse subjects of free habit that are growing more or less at this season, as *Cinerarias*, *Geraniums*, &c.

Camellia Japonica.—Take cuttings of the single kinds to strike, and form stocks at any time in this and the next month, so long as they have not stunted their growth. Every cutting should have two eyes, one below and one above ground: they will strike with bottom heat without difficulty, though many persons take the pains to have half an inch of sand on the top of the ordinary soil, and let the cuttings go through the sand and touch the soil.

Chinese Primroses.—These are rising for bloom, and form a pretty object at this time of the year, when flowers are more than scarce, for it is difficult to produce much variety at Christmas.

Chrysanthemums as they go out of flower should be cut down, but not too close, and the suckers thinned if they are much crowded; and the pots may then be set close at the foot of a wall, where they will get little water and some shelter, until they are wanted for propagation in early spring. By no means keep them in frames: if the weather becomes very severe, protect the pots with a little loose open litter

Cinerarias.—These must have plenty of room—fine foliage cannot be retained if the plants stand crowded. Neither must they be suffered to become pot-bound, but should be shifted when they require it, without reference to the season. For winter and early spring blooming there are no plants more valuable than those in a greenhouse; but plants advancing to bloom must be kept from frost. The least frost spoils them. If a few bright days can be caught, any plants that are nearly ready to open their blossoms may have a watering or two of any weak, clear manure water, which will tend to heighten and brighten their colours amazingly. Nothing is better for this purpose than water in which soot has been well stirred and allowed to settle till it becomes quite clear.

Climbing Plants.—These require adjusting by cutting out some of the oldest wood and re-arranging the young. Some climbers require to be cut down and renewed altogether, as the plants put forth new growth every year, and die down when they have made their growth perfect. Any of this kind—such, for instance, as the *Ipomæas*, some of which grow from bulbs or strong tubers—when they have done their growth for the year, may be cut down, and the plants be placed on shelves out of the way to rest until they begin to grow. The *Tropæolums* need not be urged; but, as soon as they begin of themselves to shoot, change their pots to clean ones of a larger size.

Cyclamens in a growing state should be put in the full light, and where they will get air, as well as warmth or shelter. They will bear a little extra heat if it can be given them, which will

bring forward the blossoms more rapidly than they would progress in the ordinary greenhouse temperature.

Ericas.—The Heath tribe are impatient of heat—that is, artificial heat—and will for the most part bear a little frost; but the object should be to preserve them from both. They cannot have too much air in mild weather, and it is infinitely better to cover the glass than to apply fire heat even in frosty weather. On this account pits are better than even a greenhouse for the main stock. The cuttings of *Ericas* may be taken off to strike whenever the plant is at rest; therefore at every season of the year some are fit to strike.

Fuchsias should be kept in a nearly dry dormant state, and in any cool place where they will not get much frost. A store-room, or shed, or loft, or cellar, will do, provided these conditions are complied with; they are even not very impatient of frost—not too severe—if they are nearly dry at the root. Cut them close in to a stem, or close down to the soil, before they begin to grow, though the old plants are better destroyed (if not reserved for planting out) as soon as cuttings can be got in spring.

Geraniums may be checked the

instant there are two good joints to a shoot; this, however, is to depend upon the form intended for the plant. Whenever the growth has extended as far as it is required in any direction, the ends may be pinched out. Cuttings that have been potted off, and filled their pots with roots, should be shifted to others of a larger size, and due regard be paid to the form they are growing, with a view to restrain them within proper bounds.

Insects.—The green fly, or *aphis*, is very liable to increase rapidly on free-growing greenhouse plants at this season, and if unmolested they soon become so numerous as to disfigure the plants, and do considerable damage. Fumigation with tobacco smoke, or the smoke of tobacco paper, is the best remedy. Two or three successive mild fumigations should be given, rather than one very strong, which is apt to do injury: syringe well afterwards. If the smell of tobacco is an objection, burn cascarilla for a deodoriser.

Rhododendrons of the hybrid kinds, and well-chosen ones of *Catawbiense*, will begin to swell their buds; but they must not be excited with too much watering, as they will grow into leaves and branches, and their flowers will be blighted.

SUPPLEMENT.

ABROMA. [Sterculiaceæ.] Evergreen tree of which only two species are grown, *A. augusta* from the East Indies, and *A. fastuosa* from New South Wales. Both require the stove. Seeds or cuttings.

ABRUS. [Fabaceæ.] A climbing plant requiring strong heat. Soil, loam and peat. Propagated by cuttings.

ABUTA. [Menispermaceæ.] Evergreen climber, requiring loam and peat, and increased by parting the root. Requires stove heat.

ABUTILON. Several additions worthy of notice have been made to this genus. *A. Duc de Malakoff* has flowers larger than either of those mentioned.

ACÆNÆ. [Sanguisorbaceæ.] Very humble plant, more curious than beautiful, with insignificant green flower.

ACANTHOPHIPPIUM. [Orchidaceæ.] Stove plants, requiring heat and moisture, of which the best is bicolor, which flowers at the base of the shoots, yellow and red, in June.

ACANTHOSTACHYS. [Bromeliaceæ.] Herbaceous perennial, wanting stove culture. Propagated by suckers. Flowers red and yellow in June.

ACHILLEA. [Asteraceæ.] Hardy herbaceous perennial, of which there are many varieties. They are showy and free flowering, most of them pale yellow and white, very few pink. Common outdoor culture. Propagated by parting the roots.

ACMADENIA. [Rutaceæ.] Peat, sand, and turfy loam suit this plant, which is a greenhouse evergreen, and cuttings strike freely without heat. Flowers white in June.

ACROCOMIA. [Palmaceæ.] Gigantic palms, some growing forty feet high. They flourish in a light sandy loam.

Chiefly introduced from the West Indies, and require stove culture.

ACRONYCHIA. [Aurantiaceæ.] Tall, handsome, greenhouse evergreen shrub, bearing white flowers of rich perfume, requiring common greenhouse treatment. Blooms in July, and propagated from cuttings.

ACROPERA. [Orchidaceæ.] Orchideous plant, wanting the ordinary culture of the Stanhopea, some blooming in June, July, and August.

ACROPHORUS. [Polypodiaceæ.] Ferns, requiring the ordinary treatment ; peat and loam in the stove.

ACROSTICHUM. [Polypodiaceæ.] Very pretty tropical ferns. Soil, loam and peat. Increased by dividing the roots. There are many varieties.

ACROTREMA. [Dilleniaceæ.] Stove herbaceous perennial, of the family of Ranunculus ; blooming yellow in April. Wants a light rich soil. Propagated by dividing the root.

ACROTRICHE. [Epacridaceæ.] Dwarf stove plant of easy culture, from New Holland.

ACTINOMERIS. [Asteraceæ.] Hardy herbaceous perennial, not unlike Cceropsis.

ACYNOS. [Lamiaceæ.] Handsome hardy plants, blooming chiefly purple in June and July. Wanting the ordinary outdoor culture.

ADA. [Orchidaceæ.] A family of pretty orchids, requiring ordinary stove culture ; blooming orange and red in January.

ADENANTHERA. [Fabaceæ Mimoseæ.] Noble trees from the East Indies, growing well in loam and peat. Cuttings strike well in sand and hothouse heat ; requiring ordinary stove culture.

ADENANTHOS. [Proteaceæ.] Greenhouse evergreen shrubs, from New Holland and the Swan River, requiring sandy peat. Increased by cuttings, which strike freely under a glass. They flower red in July.

ADENIUM. [Apocynaceæ.] Greenhouse evergreen shrub, increased by cutting. Soil, sandy peat and loam. Flowering rose colour in June.

ADLUMIA. [Fumariaceæ.] Hardy climbing plant. Common soil. Raised from seeds. Flowers white in August.

ÆGEPHILA. [Verbenaceæ.] Pretty stove evergreens, chiefly from the West Indies. Of easy culture in loam and peat. Increased by cuttings. Height, two to three feet.

ÆGLE. [Aurantiaceæ.] A delicious fruit, resembling an orange (the Bengal Quince). Flowers, very fragrant, come in April. Height, six to eight feet. Ordinary stove culture; loam, peat, and dung.

ÆGOCHLOA. [Polemoniaceæ.] Hardy annual. Dwarf habit. Ordinary outdoor treatment.

ÆOLLANTHUS. [Lamiaceæ.] Stove annual. Grows well in sandy loam. Dwarf habit. Flowers white in July. Propagated by seed.

ÆONIUM. [Crassulaceæ.] A rock plant, blooming yellow in May and June. To be treated like the mesembryanthemum.

ÆRANTHUS. [Orchidaceæ.] Stove epiphyte, not exceeding a foot in height. Requires strong moist heat while growing, and from September to March to be kept cool and dry, then placed in dry heat. They flower in June, but the blossoms, though large, have no scent. They may be fastened to logs of wood.

ÆRIDES. [Orchidaceæ.] Stove epiphyte, of which there are many fine varieties, blooming in April, May, and June. Requires the same treatment as *Æranthus*.

ÆSCHYNOMENA. [Fabaceæ Papilionaceæ.] Annuals and evergreen shrubs. Stove, hardy, and greenhouse.

AGALMYLA. [Cyrtandraceæ.] Pretty epiphyte for stove culture, either on a block of wood or grown in vegetable mould.

AGARICUS. [Ageriaceæ.] The whole family of fungi, including of course the mushroom.

AGLAIA. [Neliaceæ.] A Chinese plant. Stove culture, in loam, dung, and peat. Flowering in February.

AGLAOMORPHA. [Polypodiaceæ.] A very beautiful fern. To be treated as the Polypodeum, in the stove.

AGNOSTUS. [Proteaceæ.] A greenhouse evergreen, grown for its handsome foliage, but reaches twenty feet in height.

AITONIA. [Meliaceæ.] Greenhouse evergreen shrub. Ordinary culture in loam and peat. Flowers pink in July.

AILANTHUS. [Xanthoxylaceæ.] Very ornamental hardy trees. *A. glandulosus* is called the Stag's-horn Tree. It grows very fast in poor soil.

ALCHEMILLA. [Sanguisorbaceæ.] For the most part hardy perennials, suited for rockwork. A few of the species exceed a foot in height, and bloom mostly green.

ALANGIUM. [Alangiaceæ.] Tall trees from the East Indies, reaching twenty feet, and requiring stove culture.

ALLANTODIA. [Polypodiaceæ.] Greenhouse and stove ferns.

ALTERNANTHERA. [Amarantaceæ.] Dwarf stove and greenhouse plant. Rich light soil, and cuttings strike freely. Most of them herbaceous perennials, and flower, white, in July and August.

ALLIONIA. [Nyctaginaceæ.] Common dwarf annuals. Hardy, and flowering in July and August, flesh, purple, or violet.

ALLOPLECTUS. [Gesneriaceæ.] Stove evergreen, wanting the same treatment as Gloxinias.

ALNUS. [Betulaceæ.] The alder timber tree. Growing in most situations, reaching twenty feet. Propagated by layers and seeds.

ALOMIA. [Asteraceæ.] Dwarf evergreen, requiring sandy loam. Blooms white in July. Wants protection. Flourishes in sandy loam.

ALONA. [Nolanaceæ.] Greenhouse evergreens, flowering blue in July. Wanting ordinary greenhouse treatment.

ALONSOA. [Scrophulariaceæ.] Dwarf greenhouse and frame plants, flowering scarlet in June. Rich mould. Cuttings or seeds, and do well in the flower garden.

ALPINIA. [Zingiberaceæ.] Stove herbaceous perennial. Rich sandy soil. Hot moist atmosphere. Propagated by parting the roots. Flowers in February and April, red, flesh colour, or rose colour.

ALTINGIA. [Pinaceæ.] Enormous evergreen trees, reaching in their native place one hundred feet.

AMARYLLIS. [Amaryllidaceæ.] These plants have been introduced in such numbers and varieties, that they now comprise stove, greenhouse, and hardy; and of many colours.

AMELLUS. [Asteraceæ.] Greenhouse and hardy herbaceous plants, flowering violet or yellow in July and August. Common loam. Propagated by cuttings.

AMHERSTIA. [Fabaceæ.] A noble plant from the East Indies. Stove evergreen tree, growing forty feet high, bearing rich scarlet flowers in May. Strong loam. Propagated by cuttings.

AMOMUM. [Zingiberaceæ.] Herbaceous stove perennials, wanting the same treatment as *Alpinia*. *A. granatensis* produces the well-known grains of paradise.

AMPHEREPHIS. [Asteraceæ.] Dwarf hardy annuals, flowering purple in July and August. Common soil.

AMPHICARPÆA. Hardy climbers of no value.

AMPHILOPHIUM. [Bignoniaceæ.] Pretty climbers. (For culture see *BIGNONIA*.)

AMSONIA. [Apocynaceæ.] Hardy herbaceous perennials, from North America. Flowering blue in June.

AMYRIS. [Amyridaceæ.] Stove evergreen trees. Ornamental, but growing from eight to fifty feet. Stove culture. Propagated from cuttings.

ANACARDIUM. [Anacardiaceæ.] Stove evergreen trees, bearing flowers of sweet perfume, and fruit. Stove culture, in light loamy soil.

ANACYCLUS. [Asteraceæ.] Hardy annuals. Sown in the open borders. Flowering yellow or white in August.

ANANASSA. [Bromeliaceæ.] The pine-apple.

ANASTATICA. [Brassicaceæ.] Rose of Jericho. However dry this may be, it will open in water. Introduced from the Levant. Of easy culture in a frame.

ANDROCYMBIUM. [Melanthaceæ.] Bulbs from the Cape, blooming in the greenhouse in April and July. Ordinary greenhouse culture.

ANDRYALA. [Asteraceæ.] Hardy annuals and biennials and greenhouse perennials of every culture, flowering yellow, in June, July, and August.

ANEILEMA. [Commelynaceæ.] Stove and greenhouse herbaceous climbers, creepers, and shrubs. Sandy loam

and peat. Increase by cuttings. All flowering blue in July and August.

ANEIMIA. [Polypodiaceæ.] Ornamental stove ferns. Ordinary stove culture.

ANETHUM. [Apiaceæ.] Hardy perennials, biennials, and annuals, of easy outdoor culture, blooming yellow, in July and August.

ANGRÆCUM. [Orchidaceæ.] A family of beautiful orchids, very numerous, requiring the ordinary treatment; a strong moist heat. They may be fastened to logs of oak, or be grown in suspended baskets filled with moss and broken pots.

ANGULO. [Orchidaceæ.] Fine showy orchids. Treatment similar to that of Stanhopea.

ANISANTHUS. [Iridaceæ.] Bulbs from the Cape. *A. quadrangularis* flowers yellow in April; the others scarlet in June. Common greenhouse culture.

ANODONTEA. [Brassicaceæ.] Hardy and frame plants; dwarf; and blowing yellow or white in June and July. Common culture.

ANONA. [Anonaceæ.] Stove evergreen fruit-bearing trees, requiring rich loamy soil and moist heat. There are several varieties; some reaching twenty feet, others only four or five. Paxton's Dictionary mentions seventeen, all free-growing, and the fruit is varied and ornamental.

ANOTIS. [Cinchonaceæ.] A pretty little plant requiring the frame in winter, and adapted for rockwork all the summer and autumn. Common soil in the open border.

ANSELLIA. [Orchidaceæ.] A splendid orchid, rooting freely in turfy heath mould; requires a liberal supply of water while growing. Flowers in February, brown, green, and yellow.

ANTHEMIS. [Asteraceæ.] Hardy herbs used in medicine. Useful, but not ornamental.

ANTHERICUM. [Liliaceæ.] Dwarf shrubs and bulbs requiring greenhouse culture. All perennials, flowering in May, June, and July, mostly white. *Cæruleum* is blue, *rufus* copper-coloured, and *sulphureum* purple and green.

ANTINNARIA. [Asteraceæ.] Hardy herbaceous perennials; very dwarf. Common culture.

ANTIARIS. [Artocarpacææ.] The poison tree of Java—Upas. The poison obtained from it is of a deadly nature. It is an evergreen, attaining in Java a large size, and its influence on persons who stay near it is unpleasant, although the old accounts of it even down to Loudon are fabulous.

APEIRA. [Tiliacææ.] Large stove evergreen trees with fine foliage and yellow flowers, but rarely flowering in this country. Loam and peat. Propagated by cuttings.

APHELANDRA. [Acanthacææ.] Fine stove evergreens. Loam and peat. Pots well drained. Liberally watered and syringed while growing. The different varieties and species flower scarlet, orange, red, and yellow, in May, June, and July.

ARECA. [Palmacææ.] A splendid genus of palms. From *A. catechu* we have the famed betel-nut. Stove culture. Light sandy loam. The trees will reach thirty or forty feet.

ARETHUSA. [Orchidacææ.] Greenhouse and stove. Peaty soil, kept moist. *A. bulbosa* flowers white and rose in June, in the greenhouse; *plicata* blooms yellow and pink in the stove in July.

ARGYREIA. [Convolvulacææ.] Stove evergreen twiners, bearing various coloured flowers in July and August. Require light rich soil. Cuttings root freely.

ARNICA. [Asteracææ.] Hardy dwarf herbaceous perennials, blooming yellow in July. Ordinary garden culture.

ARNOPOGEN. [Asteracææ.] Hardy annuals, biennials, and perennials. Dwarf, and useful in the border. Treated like hardy annuals.

ARPOPHYLLUM. [Orchidacææ.] A rare and beautiful orchideous plant. *A. spicata* blooming with a fine spike of pink and purple flowers; others have scarlet, brown, and pink flowers. The ordinary treatment of *Epidendrum* is required.

ARTEMISIA. [Asteracææ.] An extensive genus of hardy and greenhouse plants, the greater portion of which are worthless; others adapted for rockwork. They grow in any soil, but few are worth the trouble of cultivating.

ARTHROSTEMMA. [Melastomacææ.] Stove and greenhouse evergreens. Height two feet, with rose, purple, pink,

and lilac flowers in July and August. Grow best in loam and peat, and propagated by cuttings.

ARTOCARPUS. [Artocarpacæ.] Stove evergreen trees, fifty to sixty feet high. Difficult to grow in this country. They want a light, rich, loamy soil, and cuttings strike freely under a hand-glass.

ARUNDINA. [Orchidacæ.] Slender plants with purple and violet flowers. To be treated like other orchids; watered freely while growing. They bloom in January, March, and July.

ASIMINA. [Anonacæ.] Hardy deciduous shrubs, two to three feet. Chiefly from North America. *A. triloba*, from China, grows to eight feet.

ASPASIA. [Orchidacæ.] Orchids requiring the treatment of Stanhopea.

ASTEPHANUS. [Asclepiadacæ.] Greenhouse evergreen twiners, from the Cape, blooming white in July. Peat and loam, and ordinary treatment.

ASTERACANTHA. [Acanthacæ.] Greenhouse herbaceous plant. Must not be grown too fast. Flowering yellow in July.

ASTILBE. [Saxifragacæ.] Ornamental herbaceous perennials, attaining six feet in height. Blooming white or rose in June and August. Grow best in open peat.

ASTRAPÆA. [Sterculiacæ.] Stove evergreen trees. *A. wallichii* is said to be the finest plant introduced. "When loaded with its magnificent flowers (says Paxton's Dictionary), we think nothing can exceed its grandeur." A mixture of loam and peat suits it well, but it will grow in any rich soil. Flowers pink in July, but other varieties flower in February, April, and June.

ASTROCARYUM. [Palmacæ.] Noble palms reaching thirty to forty feet high. Loamy soil. Increase by seeds.

ASTROLOBIUM. [Fabacæ.] Dwarf hardy annuals, blooming yellow in July. Grow in any common soil.

ASTROLOMA. [Epacridacæ.] Favourite greenhouse evergreen. Shoots a foot high. Pot culture in loam and peat mixed. Cuttings strike freely in sand under a glass. They bloom red or scarlet in July.

ATALANTIA. [Aurantiaceæ.] Stove evergreen shrub, bearing white flowers in July, and reaches about four feet. Ordinary stove culture in rich soil.

ATHANASIA. [Asteriaceæ.] Greenhouse evergreens, from the Cape, varying in height from six inches to two feet. In any soil. Ordinary culture. Increase by cuttings ; blooming yellow in July and August.

ATRAGENE. [Ranunculaceæ.] Hardy deciduous climber, something like the Clematis. Grows in common soil. Propagated from cuttings and seed. Some purple, yellow, and white, in June and July.

ATTALEA. [Palmaceæ.] Ornamental palms. Some growing a hundred feet. Rich soil and stove culture.

AUCUBA JAPONICA. The male plant of this beautiful evergreen and several new varieties have been introduced, and the result has been the fertilization of the old favourite ; so that it may be seen at the nurseries loaded with its brilliant scarlet berries.

AUDIBERTIA. [Lamiaceæ.] Hardy evergreens, two feet high, with pale blue flowers in August, and greenhouse herbaceous with white flowers in February. Grow in common soil. Increase from seeds.

AULAX. [Proteaceæ.] Greenhouse evergreens, from the Cape, from one to two feet high ; flowering yellow in July and August. Sandy loam, with good drainage. Cuttings strike freely under a hand-glass.

AVERRHOA. [Oxalidaceæ.] Stove evergreen tree. *A. bilimbi* is said to be beautiful, with a green oblong fleshy fruit, filled with a grateful acid juice. Handsome plants in the stove. The flowers come in racemes. *A. carambola* reaches twelve feet. Ordinary stove treatment, and increase by cuttings.

AYENIA. [Sterculiaceæ.] Stove plants, growing from one to two feet high, with purple and scarlet flower. Rich soil. Stove culture, and increase by cuttings.

BACAZIA. [Asteraceæ.] A greenhouse evergreen. Grows well in peat and loam. Increased by cuttings. Flowering pink in June.

BACCHARIS. [Asteraceæ.] Greenhouse and stove evergreens. Grow well in loam and peat. Cuttings strike under

a glass. Flowering mostly white the latter half of the year.

BACTRIS. [Palmaceæ.] Palms varying from ten to fifty feet high. Ordinary stove culture.

BALBISIA. [Oxalidaceæ.] A handsome greenhouse plant, bearing yellow flowers in August. Ordinary culture.

BAMBUSA. [Graminaceæ.] The bamboo cane, which, in India, grows large enough to form masts of vessels.

BANISTERIA. [Malpighiaceæ.] Stove evergreen climbers, grown for their beautiful foliage, especially *B. splendens*. Loam and sand, or sandy peat. Cuttings strike in heat.

BAPHIA. [Fabaceæ.] Stove evergreen tree, yielding ringwood. Ordinary stove culture.

BARBACENIA. [Hæmodoraceæ.] Stove and greenhouse herbaceous perennials. *B. gracilis* blooms red in March; *B. squamala* yellow and crimson the same month (both greenhouse); the others (stove) purple in July. Sandy loam. Increase by parting the roots.

BARBAREA. [Brassicaceæ.] Hardy herbaceous perennials. Winter Cress.

BARBIERA. [Fabiaceæ.] Stove evergreen shrub, flowering purple. Sandy peat. Increase by cuttings. Ordinary stove culture.

BARKERIA. [Orchidaceæ.] Beautiful orchids, thriving best in shallow baskets of wood filled with turfy peat and sphagnum moss. Several species from Mexico, Costa Rica, and Guatemala, flowering pink, purple, and lilac.

BARLERIA. [Acanthaceæ.] Stove evergreen shrubs. Many varieties, and of many colours. Loam, peat, and rotten dung. Increase from cuttings. Ordinary stove culture.

BARRINGTONIA. [Myrtaceæ.] Stove trees, growing twenty feet, and difficult to grow.

BARTHOLINA. [Orchidaceæ.] Greenhouse terrestrial orchid. Very difficult to cultivate, and scarcely worth the trouble.

BASELLA. [Basillaceæ.] Stove annuals. Treated as capsicum, chili, &c. Some are twiners and climbers.

BASSIA. [Sapotacea.] Stove evergreen trees, forty feet high.

BATEMANNIA. [Orchidaceæ.] An interesting orchid, wanting the treatment of Stanhopea.

BATSCHIA. [Boraginaceæ.] Hardy herbaceous perennials, flowering yellow in June and July. Increase by division or seeds.

BAUHINIA. [Fabiaceæ.] Stove evergreen shrubs and climbers. An extensive genus, few of which are worth growing. Ordinary stove culture.

BEATONIA. [Iridaceæ.] Greenhouse bulbs, flowering purple in July and August. Ordinary culture.

BEAUMONTIA. [Apocynaceæ.] Stove evergreen twiner. Very beautiful, flowering white in June. Loam and peat. Propagated by cuttings.

BECIUM. [Lamiaceæ.] Hardy shrub, flowering white and lilac in October. Height, two feet. Propagated by seeds and cuttings.

BEDFORDIA. [Asteraceæ.] Greenhouse evergreen shrubs, to be grown in sandy loam, brick, rubbish, and decomposed dung. Flowering yellow in May.

BEGONIA. Some splendid specimens, with mostly variegated foliage, now put the old varieties in the shade; some of them are beautiful beyond description, and many splendid hybrids have been raised.

BERCKHEYA. [Asteraceæ.] A genus, comprising greenhouse evergreen shrubs and herbaceous perennials, from the Cape. Loam and peat. Increase by cuttings under a hand-glass.

BERGERA. [Aurantiaceæ.] Stove evergreens. Sandy loam. Increase by cuttings or layers. They flower white in June. Ordinary stove culture.

BERINGERIA. [Lamiaceæ.] Hardy herbaceous perennials, bearing purple flowers in July and August; and one half-hardy shrub. Any common soil.

BESLERIA. [Gesneriaceæ.] Stove evergreen shrubs and climbers, flowering in June and July, chiefly yellow.

BETONICA. [Lamiaceæ.] Dwarf hardy herbaceous plants, adapted for rockwork, flowering red, purple, or white, in May, June, July, or August. Ordinary garden soil.

BETULA. [Betulaceæ.] The Birch.

BIFRENARIA. [Orchidaceæ.] Pretty orchids. Treatment as *Maxillaria*.

BILLBERGIA. [Bromeliaceæ.] Stove epiphyllum, growing something like the pine-apple, and throwing up a spike of flowers from April to September. Common stove treatment.

BISCUTELLA. [Brassicaceæ.] Hardy annuals and perennials adapted for rockwork. Common garden soil. Blooming yellow in June and July.

BLÆRIA. [Ericaceæ.] Greenhouse evergreen. Same treatment as heaths.

BLAKEA. [Milastomaceæ.] Evergreen shrub from the West Indies, requiring stove treatment, and flowering white in June.

BLECHUM. [Acanthaceæ.] Herbaceous stove perennial. To be treated like *Justicia*.

BOLBOPHYLLUM. [Orchidaceæ.] Stove epiphyllums, requiring strong damp heat ; or in other respects as *Stanhopea*. There are many species, and all beautiful.

BOLDOA. [Nyctaginaceæ.] Stove and greenhouse evergreen shrubs and herbaceous perennials, requiring only ordinary treatment of their respective classes.

BOTRYCHIUM. [Ophioglossiaceæ.] Moonwort. Rather interesting ferns. *B. virginicum* is the Rattle-snake Fern. Culture like *Adiantum*.

BOUSSINGAULTIA. [Russellaceæ.] A desirable stove plant of rapid growth, with racemes of fragrant white flowers in July. Ordinary soil and stove culture.

BRASSAVOLA. [Orchidaceæ.] Epiphyllums bearing fragrant flowers. Requiring the treatment of *Stanhopeas*. Many varieties, and all interesting.

BRASSIA. [Orchidaceæ.] Treatment of *Stanhopea*. Many varieties of this favourite orchid; some of them blooming in February, March, April, and May, and yielding a delicious odour.

BREXIA. [Brexiceæ.] Stove evergreens valued for their foliage. Stove culture in turfy loam and peat. Increased by cuttings.

BROMELIA. [Bromeliaceæ.] Stove plants, something like the pine-apple, requiring ordinary hothouse culture.

Many varieties. Some flowering almost every month in the year, pink, blue, yellow, or purple.

BROSSÆA. [Vacciniaceæ.] Stove evergreen, with scarlet flowers in June. Raised from cuttings. Sandy, peaty soil, and ordinary stove culture.

BROTERA. [Asteraceæ.] Hardy herbaceous perennial, with blue flowers in June. Common garden soil.

BROUGHTONIA. [Orchidaceæ.] Ordinary treatment. Flowers red, scarlet, and crimson, in March, April, June, and August.

BROWNEA. [Fabaceæ.] Stove evergreen trees and shrubs. A rare but desirable genus, flowering red and scarlet in June and July. Ordinary stove treatment, and raised from cuttings.

BUDDLEA. [Scrophulariaceæ.] Very handsome shrubs. *B. globosa* flourishes in the open air, and flowers orange in May. *B. neemda* is a fine stove shrub, blooming white in June. Other species of stove and greenhouse character are interesting, and require ordinary culture accordingly.

BURLINGTONIA. [Orchidaceæ.] A lovely family of orchids, with flowers beautiful and fragrant. Grow best on oak logs with a little moss to cover. Strong heat and moisture are required while they are growing.

BURSARIA. [Pittosporaceæ.] A pretty greenhouse evergreen. Sandy loam and peat. Increase from cuttings. In October it is covered with its white blossoms.

BYRSONIMA. [Malpighiaceæ.] Stove evergreen shrubs and trees, thriving in rich soil, but not adapted for small collections.

CÆLESTINA. [Asteraceæ.] Frame and greenhouse herbaceous perennials. Common garden soil. Flowers blue in August. *C. micrantha* is a shrub flowering in July. Ordinary greenhouse culture.

CALADIUM. Great additions have been made to this genus by new introductions and garden hybrids.

CALDASIA. [Apiaceæ.] Stove annual, flowering blue in July. Ordinary stove culture. Seed.

CALEA. [Asteraceæ.] Stove evergreen shrubs, blooming purple in June. Ordinary culture.

CALEACTE. [Asteraceæ.] Stove evergreen shrubs, blooming yellow in June and July. Ordinary stove culture.

CALPTERIS. [Polypodiaceæ.] A genus of stove ferns. Treatment, Polypodium.

CALLICARPA. [Verbenaceæ.] Greenhouse and stove evergreen and deciduous shrubs, requiring the ordinary treatment of the respective habitats. Flowering red or purple in June and July. Increased by cuttings.

CALOCHILUS. [Orchidaceæ.] Greenhouse terrestrial orchids from New Holland. They nevertheless do better in the stove. Treated as Bletias.

CALOPHACA. [Fabaceæ.] Hardy deciduous shrub, flowering yellow in May. Multiplied by seeds.

CALOPHANES. [Acanthaceæ.] Hardy dwarf herbaceous perennial, blooming blue in August. Ordinary border treatment.

CALOPOGON. [Orchidaceæ.] Greenhouse terrestrial orchid, flowering purple in July. Soil, peat and loam. Increase by dividing the roots.

CAMAROTIS. [Orchidaceæ.] Orchid, growing best on a rough log of wood, roots protected with moss, and must be shaded. Damp stove treatment.

CAMASSIA. [Asphodelaceæ.] Hardy bulb, requiring a peat border. Blooms with large purple flowers in July.

CANDOLLEA. [Dilleniaceæ.] Showy greenhouse evergreens, blooming yellow in June and July. Common greenhouse culture.

CAPPERIS. [Capparidaceæ.] The Caper. Never grown for its beauty, and not much for its curiosity.

CARAGANA. [Fabaceæ.] Hardy deciduous shrubs, blooming yellow in April, May, and June. Useful in shrubberies. Ordinary outdoor treatment.

CARDUNCCELLUS. [Asteraceæ.] Hardy herbaceous perennials. Common outdoor treatment. Increase by dividing the roots.

CARDUUS. [Asteraceæ.] An extensive genus of coarse hardy annuals and perennial plants, with purple flowers in July. Not adapted for small gardens.

CAREYA. [Myrtaceæ.] *C. herbacea* is a splendid stove plant which must be grown in light loam and sandy peat.

C. arborea and *C. sphaerica* are stove evergreens; the former tree growing twenty feet high, and the latter two feet.

CATALPA. [Bignoniaceæ.] Hardy deciduous and evergreen trees, for lawn or shrubbery. Two are stove evergreen trees.

CATASETUM. [Orchidaceæ.] An extensive genus of orchids, remarkable for the variety of their flowers. They only require the same treatment as Stanhopea.

CATHARANTHUS. [Apocynaceæ.] Stove evergreen shrubs, requiring ordinary stove culture. *C. pusillus* is an annual, and may be treated as other tender annuals, and will bloom in August.

CATTLEYA. [Orchidaceæ.] An extensive genus of orchids, some of which are magnificent. The treatment should be similar to that of Stanhopea.

CELASTRUS. [Celastraceæ.] Ornamental stove, greenhouse, and hardy plants. Mostly evergreen shrubs from the Cape. *C. scandens* is a hardy deciduous climber; so is *C. bullatus*. Sandy loam and peat suit them all, and the ordinary greenhouse treatment.

CHAMÆDOREA. [Palmaceæ.] An interesting genus of palms, requiring ordinary stove culture; they vary in growth from ten to twelve feet.

CHAMISSOA. [Amarantaceæ.] A fine stove plant from Jamaica, flowering yellow in July. Ordinary stove culture.

CHELIDONIUM. [Papaveraceæ.] Hardy herbaceous perennials, blooming yellow in May. A double variety. *Majus* does not flower till September. Common outdoor treatment.

CHITONEA. [Melastomaceæ.] Ornamental stove evergreen shrubs and trees, growing well in peat and loam, and flowering white or purple in July. Common stove treatment.

CHLORA. [Gentianaceæ.] Hardy annuals, not exceeding one foot high. Ordinary border treatment.

CINNAMOMUM. [Lauraceæ.] Stove plants. *C. verum* is the cinnamon, and *C. camphora* produces camphor; but all the species are tall, twenty to forty feet.

CIRRHÆA. [Orchidaceæ.] Orchids. To be treated as Stanhopea. Colour various, green predominating.

CISSUS. [Vitaceæ.] Stove evergreen climbers, valued for their foliage. Free grown, in light rich soil. Increased by cuttings.

CLARODENDRON. BALFOURIANUM.—One of the most beautiful plants in cultivation. A splendid addition to those we have mentioned in the Handbook.

CLEMATIS. In addition to the varieties mentioned in the Handbook, there are now several striking and beautiful kinds, with large and splendid flowers, raised in this country; one very large and double, colour light blue, raised by John Gould Veitch, is worthy of special notice.

CLIANTHUS. A superb variety called *Dampieri* has been added, and is justly esteemed a valuable addition.

CLITORIA. [Fabaceæ.] Stove evergreen climbers. Loam, peat, and sand. Ordinary stove culture. Bloom pink, yellow, scarlet, and red, in June, July, and August.

CCELOGYNE. [Orchidaceæ.] A showy genus of orchids. To be treated as Stanhopea. Some blooming in each month.

COLEBROOKIA. [Lamiaceæ.] Greenhouse evergreen shrubs. Peat and loam. Cuttings. Flowering white in June.

COLEUS. [Lamiaceæ.] Stove and greenhouse evergreens, of which the garden varieties are numerous and beautiful, and now form a great feature at exhibitions. The colour of the foliage is the attraction.

COPTIS. [Ranunculaceæ.] Hardy herbaceous plant from North America. Should be grown in peat. Blooms brown in May.

CORYANTHES. [Orchidaceæ.] A magnificent genus of epiphytes, growing like Stanhopeas, with large conspicuous flowers, curious and beautiful in May and June. Treatment same as Stanhopea.

COSMOS. [Asteraceæ.] Hardy annuals, flowering purple, lilac, and scarlet; growing something like the single dahlia, flourishing under the same treatment and flowering about the same time.

CROTON. [Euphorbiaceæ.] Since the exhibitions invited a display of ornamental foliaged plants, this genus has been strengthened by many beautiful varieties, and now makes quite a feature in the collections. It requires ordinary stove treatment.

CRYPTOCHILUS. [Orchidaceæ.] Interesting orchids blooming scarlet in June. Treatment of Stanhopea.

CUPIA. [Cinchonaceæ.] Showy stove evergreen shrubs with white fragrant flowers. Loam, peat, and sand, and ordinary stove treatment.

CYATHEA [Polypodiaceæ.] Tropical ferns.

CYCNOCHES. [Orchidaceæ.] Favourite orchids. To be treated as Stanhopea. *C. loddigesii* has large and fragrant flowers.

CYMBIDIUM. [Orchidaceæ.] This genus comprises epiphytes, which require the same treatment as Stanhopea, and a few Oriental species which want ordinary stove management.

CYPRIPEDIUM. Many beautiful species have been introduced since we noticed this genus, for then the only favourite was *C. insignis*; now there are many different, but none better.

CYRTANTHERA. [Acanthaceæ.] Beautiful genus of stove evergreen shrubs, blooming orange, yellow, or rose in June. Loam, peat, and leaf mould, and the warmest part of the stove. Increase by cuttings.

CYRTOPERA. [Orchidaceæ.] A fine genus of orchids, requiring ordinary stove culture. Increase by separation.

CYRTOPODIUM. [Orchidaceæ.] Orchids, requiring the treatment of Stanhopea, and giving fine yellow fragrant flowers in April and May.

DALBERGIA. [Fabaceæ.] Ornamental stove evergreens, from the East Indies. Climbers and trees. Ordinary stove treatment.

DENDROBIUM. [Orchidaceæ.] A magnificent genus of orchids, hardly surpassed by any. The treatment like that of Stanhopea suits them best. They come from all the hot countries, and the species amount to hundreds, some flowering in every month, and some of all colors.

DENTARIA. [Brassicaceæ.] Hardy perennials, flourishing in the open air in common garden soil. More than a dozen species of different colours. Height, one foot.

DESMODIUM. [Fabaceæ.] An extensive genus, comprising stove and hardy shrubs and perennials, of which but few are worth cultivating.

DESMONCUS. [Palmaceæ.] Ornamental stove palms. Ordinary stove treatment.

DIPLAZIUM. [Polypodaceæ.] A very desirable genus of stove ferns. Herbaceous perennials, from one to twelve feet high. Loam and peat. Increased by division or seeds.

DIPLOTHEMIUM. [Palmaceæ.] Ornamental palms, requiring stove treatment. Ten feet high.

DISEMMA. [Passifloraceæ.] Stove and greenhouse evergreen climbers, requiring the same treatment as *Passiflora*; blooming orange, red, and white in July.

DISOACTUS. [Cactaceæ.] Formerly among the *Cereus*. Evergreen stove shrub, flowering pink in May. Ordinary stove treatment as *Cereus*.

DOUGLÆSIA. [Primulaceæ.] Hardy herbaceous plant, blooming purple in June. Very dwarf. Peat and sand. Raised from seed.

DRIMIA. [Liliaceæ.] Greenhouse bulbs, flowering in August, various colours. Loam and peat.

DRYPTIS. [Coryophyllaceæ.] Beautiful little hardy evergreen, adapted for rockwork, flowering blue profusely in June.

ECCREMOCARPUS. [Bignoniaceæ.] Greenhouse evergreen climber. Sand, loam, and peat.

ECHINOPS. [Asteraceæ.] Hardy herbaceous plants, growing from two to five feet in the common border, and flowering blue or white in July and August.

ECHIUM. [Boraginaceæ.] An extensive genus of hardy and greenhouse shrubs, annual and perennial. Loam and peat. Flowering various colours, in June, July, and August.

EMPETRUM. [Empetraceæ.] Hardy evergreen shrubs. Ordinary garden soil. Dwarf habit.

EPIDENDRUM. [Orchidaceæ.] A very extensive genus of orchids, comprising hundreds of species, which may be treated as *Stanhopea*. All interesting, and many beautiful. All colours but red.

EPILOBium. [Onagraceæ.] A genus of hardy herbaceous plants, some ornamental, others more weedy.

ERIA. [Orchidaceæ.] A genus of orchids, rather numerous and pretty when in flower. Treatment of *Stanhopea*.

ERIGERON. [Asteraceæ.] A showy genus of hardy plants. Annual and herbaceous perennials, for the most part dwarf, and require only ordinary border culture.

ERIOCEPHALUS. [Asteraceæ.] Greenhouse evergreen shrubs. Peat and sandy loam ; blooming in February, March, and April, yellow or purple. Ordinary culture.

ERODIUM. [Geraniaceæ.] A genus of hardy herbaceous and annual plants, wanting the ordinary outdoor culture ; flowering various colours.

EVELYNA. [Orchidaceæ.] A genus of pretty orchids, requiring only ordinary stove culture.

EVOLVULUS. [Convolvulaceæ.] Stove and hardy annuals, and two or three shrubs. The rest are trailers. The annuals should be raised in heat, and turned out like others.

FARSETIA. [Brassicaceæ.] Hardy and frame evergreens ; chiefly shrubs. *F. clypeata* is a perennial adapted for rockwork. The rest may be sown where they are to grow. Flowering yellow or purple in July.

FERNELIA. [Cinchonaceæ.] Dwarf stove evergreen shrubs, with glassy leaves and purple flowers in May. Raised from cuttings. Turfy loam and peat, and ordinary stove culture.

FOTHERGILLA. [Hamamelidaceæ.] Hardy deciduous shrubs, four feet high. Require peat. Increase by layers. White sweet-scented flowers in May and June.

FRANKENIA. [Frankeniaceæ.] Hardy and greenhouse dwarf evergreens, blooming various colours in July. Excellent for rockwork. Loam, peat, and sand. Increase by cuttings.

GALACTIA. [Fabaceæ.] Hardy deciduous and stove evergreen climbers, the hardy ones flowering purple, and the latter red or rose, in July. Ordinary culture.

GEISSOMERIA. [Acanthaceæ.] Handsome stove evergreen shrubs, with scarlet flowers in July. Loam and rotten dung. Increase by cuttings. Ordinary stove culture.

GEONOMA. [Palmaceæ.] A genus of palms, from four to twenty feet high. Ordinary stove culture.

GERARDIA. [Scrophulariaceæ.] Hardy herbaceous annuals, biennials, and perennials, flowering yellow in June and July. Increase by cuttings. Ordinary culture.

GLOBULEA. [Crassulaceæ.] A genus of succulent plants wanting sandy loam and peat, with a little brick rubbish to grow in, and water only when in a growing state. Cuttings allowed to dry a day or two will strike freely. They are all herbaceous perennials, and flower white in June, July, and August.

GNAPHALIUM. [Asteraceæ.] Hardy annuals and perennials, except *albescens*, stove evergreen, and *purpurium*, a greenhouse biennial. Ordinary culture. Increase by cuttings and division of root.

GONIOPHLEBIUM. [Polypodiaceæ.] Stove and greenhouse ferns. Common culture.

GONGORA. [Orchidaceæ.] A genus of orchids, with singularly formed flowers and rich perfume. They thrive under the ordinary management of Stanhopea.

GOODIA. [Fabaceæ.] Neat greenhouse evergreen shrubs, flowering yellow in June. Common greenhouse culture in loam and peat, and increase by cuttings.

GOODYERA. [Orchidaceæ.] A genus of orchids, both hardy and stove; all terrestrial. The stove in sandy peat and leaf mould, the hardy in sandy peat. They flower white.

GOVENIA. [Orchidaceæ.] A genus of orchids. To be treated as *Bletia*.

GUSTAVIA. [Myrtaceæ.] Stove evergreen shrubs. *G. auguste* grows ten feet high. Common stove culture in rich soil. Increase by cuttings.

GYMNOGRAMMA. [Polypodiaceæ.] A genus of stove ferns. Loam and peat, and ordinary stove culture. Increase by division.

GYMNOPTERIS. [Polypodiaceæ.] Stove ferns, requiring only ordinary stove culture.

HALESIA. [Ebenaceæ.] Hardy deciduous shrubs (snow-drop trees), flowering white in April and May. Common garden soil. Multiplied by layers and cuttings.

HALIMODENDRON. [Fabaceæ.] Hardy deciduous shrubs, flowering pink in May and June. Ordinary shrubbery management.

HALLERIA. [Scrophulariaceæ.] Greenhouse evergreen shrubs from the Cape, flowering scarlet in July. Common

greenhouse treatment, in a light rich soil. Increase by cuttings.

HAMELIA. [Cinchonaceæ.] Free-flowering stove evergreens. Peat and loam. Ordinary stove treatment, and increase by cuttings.

HAMILTONIA. [Cinchonaceæ.] Stove and frame shrubs, flowering freely, and yielding a delicious perfume. Loam and peat. Ordinary stove culture ; and the frame species only requires a slight protection. Flowering in November and January. Increase by cuttings.

HAPALOSTEPHIUM. [Asteraceæ.] A genus adapted for rockwork, and flowering yellow in June and July.

HELICONIA. [Musaceæ.] Stove herbaceous perennials. Rich loamy soil mixed with sand ; plenty of pot room and strong heat. Flowering in June or July, orange or scarlet.

HELIOPHILA. [Brassicaceæ.] For the most part herdy ; a few greenhouse shrubs. Ordinary culture. Loam and peat. Blooming various in June and July.

HERACANTHA. [Asteraceæ.] Pretty hardy annuals. Ordinary culture. Loam and peat. Flowering white or yellow in June or July.

HERMANNIA. [Sterculiaceæ.] Greenhouse evergreen shrubs. Light rich soil. Increase by cuttings. Flowering yellow in May, June, or July. Ordinary greenhouse treatment.

HIERACIUM. [Asteraceæ.] An extensive genus of hardy perennials, all flowering yellow in July and August ; adapted for rockwork. Ordinary soil and treatment. Increase by cuttings or division.

HOMERIA. [Iridaceæ.] Greenhouse bulbs from the Cape. Common greenhouse culture. Flowering bright scarlet in May. Loam, peat, and dung. Water freely while growing ; but none when at rest.

ISMELIA. [Asteraceæ.] Frame and greenhouse evergreen shrubs. Light sandy soil. Ordinary culture. Flowering white, purple, or straw colour, in May. Cuttings and seeds.

LÆLIA. [Orchidaceæ.] A genus of beautiful orchids, requiring the treatment of the Cattleyas, or ordinary stove culture. There are many species, flowering in several of the months, and various colours.

LASIANDRA. [Melastomaceæ.] Elegant stove plants requiring ordinary culture in loam, peat, and sand. Flowering purple in July. Increased by cuttings.

LEIMANTHIUM. [Melanthaceæ.] Hardy herbaceous perennials, requiring ordinary outdoor culture in a peaty soil. Flowering white or brown in June. Increase by seeds.

LEMONIA. [Rutaceæ.] A fine stove evergreen shrub, from Cuba, with rose-coloured flowers in September. Ordinary culture in loam and peat. Increase by cuttings.

LEONURUS. [Lamiaceæ.] Hardy annuals, biennials, and perennials, requiring the ordinary outdoor treatment and common soil. Flowering variously in June and July, pink, purple, yellow, and red.

LEPTANDRA. [Scrophulariaceæ.] Hardy herbaceous perennials, flowering in June and July, various colours. Common culture. Increased by division of the roots.

LESPEDeza. [Fabaceæ.] Hardy herbaceous perennials and annuals. Twiners and shrubs, the latter requiring peat and sand, the others want light rich soil, but ordinary outdoor treatment. They flower various colours in June and July. Increased by cuttings and dividing the roots.

LEUCOPOGON. [Epacridaceæ.] Greenhouse evergreen shrubs, requiring sandy loam and peat. Common greenhouse culture. Increase from cuttings. Flowering white in June.

LILIUM. Although this beautiful family are treated at some length in the Handbook (page 171), there have been many splendid species introduced since that was published, the most remarkable of which is *Auretum*, which every grower should possess; and the culture of which is the same as the Japan species.

LITHOSPERMUM. [Boraginaceæ.] Hardy annuals, biennial and perennial, herbaceous and shrubby, adapted for rockwork or the tops of walls, where they will establish themselves. Blooming variously.

LODDIGESIA. [Fabaceæ.] Greenhouse evergreen shrub from the Cape, wanting ordinary culture in loam and peat, and blooming pale purple in June. Increase by cuttings.

LOMATIA. [Proteaceæ.] Greenhouse evergreen shrub. Wants sandy peat soil. Several species. Increased by

cuttings. Flowering various colours in June or July. Ordinary culture.

LOPHANTHUS. [Lamiaceæ.] Hardy herbaceous plants, requiring ordinary outdoor culture, flowering white, blue, or pink, in July. Cuttings and division of roots.

LYCASTE. [Orchidaceæ.] A beautiful genus of orchids, comprising many species, separated from *Maxillaria*. Flowering various colours in almost all the months. Treatment like *Stanhopea*.

MALPIGHIA. [Malpighiaceæ.] Stove evergreen shrubs and trees. Some two or three of the former are worth cultivating, such as *M. aquifolia* and *M. coccifera*. Any light soil and stove culture suit them. Cuttings of ripened wood strike freely. They flower pink and rose in June and July.

MARICA. [Iridaceæ.] Stove and greenhouse herbaceous perennials. Loam, peat, and sand. Stove or greenhouse culture as the case may be. Flowering blue, white, or yellow. Seed or division of roots.

MARSDENIA. [Asclepiadaceæ.] Stove and greenhouse evergreen twiners, adapted for training to the rafters. *M. erecta* and *M. suaveolens* are shrubs. Loam, peat, and sand. Propagated by cuttings. The shrubs flower white in July, the others yellow and purple.

MARSHALLIA. [Asteraceæ.] Frame or greenhouse herbaceous perennials, flowering purple in June or July. Common culture in peat and loam.

MAXILLARIA. [Orchidaceæ.] An extensive genus of orchids generally esteemed for its beautiful flowers. Fastened to blocks on a layer of moss, they succeed well in the orchid house, flowering all the months in all colours. Above a hundred species.

MEDINILLA. [Melastomaceæ.] Stove evergreen shrubs, flowering rose or pink in April, June, and July. (For culture see *MELASTOMA*, page 189 of Handbook.)

MELANTHEUM. [Melanthaceæ.] Greenhouse bulbs. Ordinary culture. Flowering white, pink, and variegated, in several different months.

MELITTA. [Lamiaceæ.] Showy, hardy herbaceous perennials, blooming flesh-colour or white and yellow, in any common outdoor culture.

MERIANA. [Melastomaceæ.] Stove evergreen shrubs, of which there are half a dozen species, flowering scarlet, crimson, white, purple, and rose, in June. Ordinary stove culture, and half-ripened wood strike freely.

MERTENSIA. [Boraginaceæ.] Herbaceous perennials, perfectly hardy. Ordinary out of door culture. They bloom in May, June, and July, shades of blue.

MILTONIA. [Orchidaceæ.] A genus of orchids, of which there are several beautiful species from Brazil. The ordinary culture of Stanhopea will answer. They succeed best in the warmest part of the house. Some flower in all the different months, and in different colours.

MUNDIA. [Polygalaceæ.] Greenhouse evergreen shrubs from the Cape, flowering white, purple, and lilac, in February and March. "Well worth cultivating for their flowers and fruit." Sandy peat, and increase by cuttings. Ordinary culture.

ODONTOGLOSSUM. [Orchidaceæ.] An extensive genus of splendid orchids; more than seventy species are described. They flourish under the same treatment as *Oncidiums*, some of them flowering in every month in the year, in all varieties of colour.

ONCIDIUM. [Orchidaceæ.] A splendid genus of orchids, including among hundreds of beauties *O. papilio* (the Butterfly Orchid). To enumerate the many species that produce long spikes of superb flowers, more or less like moths and butterflies, would be difficult. The roots should be enveloped in moss and rotten wood, for which purpose a basket suspended from the roof is the best means. The roots must have air; they therefore ought not to be put too deep; in other respects the culture of Stanhopea may be adopted.

OSBECKIA. [Melastomaceæ.] Stove evergreens, with two or three exceptions, which are deciduous. Dwarf habit, free flowering in June and July. (For culture, see *MELASTOMA*.) The flowers are various in the different species.

OSTEOSPERMUM. [Asteraceæ.] Evergreen shrubs from the Cape, requiring common greenhouse culture.

OXYTROPIS. [Fabaceæ.] Dwarf hardy herbaceous perennials, adapted for rockwork; many species flowering differently, purple, blue, green, and red, in June and July.

Common garden culture. Increase by seeds, which should be sown where they are to bloom.

PALCHIDENDRON. [Liliaceæ.] Tree aloes, from the Cape. (For culture, see ALOES.)

PENÆA. [Penæaceæ.] Greenhouse evergreen shrubs, flowering red or pink in June. Common greenhouse culture, in sandy peat. Increase from cuttings.

PERALTEA. [Fabaceæ.] A greenhouse evergreen shrub, flowering purple in September. Common greenhouse culture, in loam, peat, and sand. Increase from cuttings.

PERISTERIA. [Orchidaceæ.] A lovely genus of orchids. The individual flowers resemble a dove. *P. elata* has a long spike of white attractive wax-like flowers. The English name is Dove Flower. The ordinary treatment of orchids is all it requires.

PETREA. [Verbenaceæ.] Stove twiners. *V. volubilis*, with purple flowers in July, is one of the finest we have of its class. It wants only ordinary stove treatment. Increase by cuttings.

PEYROUSIA. [Iridaceæ.] Fine bulbs from the Cape, which require common greenhouse culture as *Ixias*. They bloom blue or violet, in May, June, and September.

PHAIUS. [Orchidaceæ.] A genus of orchids, of which *P. albus*, which blooms white in July, is the best. Ordinary orchid culture.

PHALÆNOPSIS. [Orchidaceæ.] Indian Butterfly Plant. A genus of orchids, of which *P. amabilis* is a splendid example, exhibiting its spike of noble white flowers in June. Requiring the ordinary culture in the stove.

PHYLLANTHUS. [Euphorbiaceæ.] Stove evergreen shrubs and climbers, more curious than beautiful. The annuals must be treated as other tender annuals; the others as ordinary stove plants.

PHYSOCHLAINA. [Solanaceæ.] Hardy herbaceous perennials, blooming purple, yellow, and blue, in March and April. Increase by division.

PIPTANTHUS. [Fabaceæ.] Hardy deciduous shrub, flowering yellow in May. Out of door culture in shrubbery.

PLATYSTYLIS. [Fabaceæ.] Hardy herbaceous perennials, flowering purple in May. Common out of door culture.

PODOSPERMUM. [Asteraceæ.] Annual, perennial, and biennial ; all hardy. Flowering yellow in June. Common garden soil and culture.

POLANISIA. [Capparidaceæ.] Hardy annuals, flowering rose, white, red, and yellow, in June. Same culture as other hardy annuals.

POMADERRIS. [Rhamnaceæ.] Early flowering greenhouse evergreen shrubs, blooming yellow in May and June. Common culture.

PORTLANDEA. [Rubiaceæ.] Stove evergreen shrubs, blooming white or scarlet, in June. Sandy loam and peat. Ordinary hothouse culture. Increase by cuttings in strong peat.

PSORALEA. [Fabaceæ.] An extensive genus of hardy frame and greenhouse evergreens, flowering purple, violet, and blue, from July and August. Ordinary greenhouse culture ; the few hardy ones, common garden management. Seeds and cuttings.

PULMONARIA. [Boraginaceæ.] Hardy herbaceous perennials, flowering white, pink, or blue. Any common soil, and increase by division.

RAFNIA. [Fabaceæ.] Greenhouse evergreen shrubs from the Cape, flowering yellow in June. Ordinary greenhouse culture in peat and loam.

RANDIA. [Cinchonaceæ.] Stove evergreen shrubs like the Goodenias, and require the same treatment. They bloom white, in May, June, and July.

RHEXIA. [Melastomaceæ.] Hardy herbaceous perennials, flowering white, purple, and pink, in June and July. Common outdoor culture. Increase by division.

RHYNCHOSPURMUM. [Apocynaceæ.] *R. jasminoidis* is a very beautiful greenhouse shrub, requiring only the ordinary greenhouse culture, in loam and peat. Literally covered with its flowers for weeks. The branches require support, but the plant wants a trellis.

SABADILLA. [Palmaceæ.] A noble genus of palms, requiring stove culture and light loamy soil.

SAUSSUREA. [Asteraceæ.] Hardy herbaceous perennials, wanting only the common garden soil, and for the most part flowering purple in July.

SCHOTIA. [Fabaceæ.] Greenhouse evergreen shrubs from the Cape, flowering crimson, scarlet, and purple; requiring ordinary greenhouse culture. Increase by cuttings.

SCOPOLIA. [Solanaceæ.] Hardy herbaceous plant, producing its dark purple flowers in April. Common out of door culture.

SCOTTIA. [Fabaceæ.] Greenhouse evergreen shrubs, flowering yellow and red, green and red, yellow and scarlet, green and yellow, in January, April, June, and July. Ordinary culture. Increase by cuttings.

SEBÆA. [Gentianaceæ.] Half-hardy annuals, to be raised in heat and planted out in May, flowering white, yellow, or red, in July and August.

SERICOGRAPHIS. [Acanthaceæ.] A stove evergreen shrub, blooming red in December. Common stove culture.

SERRATULA. [Asteraceæ.] Hardy herbaceous perennials, and two or three are annuals, all flowering purple in July. Wanting only the ordinary out of door culture.

SERRURIA. [Proteaceæ.] An extensive genus of evergreen shrubs from the Cape, requiring greenhouse culture. Blooming pink or purple, mostly in July.

SMEATHMANNIA. [Passifloraceæ.] Stove evergreen shrubs, flowering white in February. Loam, peat, and sand, and general hothouse treatment.

SONCHUS. [Asteraceæ.] Hardy and greenhouse shrubs and herbaceous plants; the hardy merely wanting the ordinary out of door treatment. The greenhouse species grow in any common soil. Increase by cuttings and divisions of the roots. They all bloom yellow in June and July.

SOPHORA. [Fabaceæ.] A genus comprising hardy herbaceous perennials, stove and greenhouse evergreens, and several lofty trees. The manageable species want only the treatment common to the respective classes. They all flower yellow or white.

SOROCEPHALUS. [Proteaceæ.] Greenhouse evergreen shrubs from the Cape, flowering purple in June and July, and requiring ordinary treatment.

SPARTIUM. [Fabaceæ.] Hardy deciduous shrubs, adapted for ornamental planting, and flowering yellow in August. Increase by cuttings and seeds.

SPATALLA. [Proteaceæ.] Greenhouse evergreen shrubs, flowering purple in April, May, June, and July. Ordinary culture in turfy loam. Increase by cuttings.

SPATALANTHUS. [Iridaceæ.] Hardy Cape bulb. flowering white in August. Common culture.

SPATHODEA. [Bignoniaceæ.] Stove evergreen trees and shrubs. To be treated like Bignonia.

STANHOPEA. [Orchidaceæ.] A magnificent genus of orchids, best cultivated in open wire baskets, filled with lumps of peat, crocks, and moss, and suspended from the roof. The flowers protrude through the sides and bottom, and hang down. There are many colours. *S. grandiflora* 's white and purple in June.

STENACTIS. [Asteraceæ.] A showy, hardy herbaceous plant. Common border culture. Flowers purple in July. Increase by seeds or division.

STENANTHERA. [Epacridaceæ.] Greenhouse evergreen shrub. Ordinary treatment, in one-third loam and two-thirds peat. *S. ciliata* blooms red in April and *S. pinifolia* scarlet in June. Cuttings strike freely.

STEPHANOTIS. [Asclepiadaceæ.] Splendid stove evergreen twiner, indispensable in the most limited collection of plants. Turfy loam and peat; moderate heat. It may be made to cover a roof, if necessary, it grows so freely; and blooms profusely with showy white flowers in May. Increase by cuttings. *S. floribunda* is a universal favourite.

STEVIA. [Asteraceæ.] Chiefly greenhouse or frame perennials, of dwarfish habit, flowering various colours, in August. Division of roots and common soil.

STEWARTIA. [Ternstroemiaceæ.] Hardy deciduous trees, adapted for the shrubbery, flowering white in June. Ordinary out of door culture.

STROBILANTHES. [Acanthaceæ.] A fine stove genus of evergreen shrubs; the different species flowering purple, blue, or yellow, in the various months. Ordinary stove culture. Increase by cuttings.

STROPHANTHUS. [Apocynaceæ.] Stove and greenhouse evergreen shrubs. Ordinary culture in loam and peat. Propagated by cuttings. Flowering yellow or red in June.

STYRAX. [Styracæ.] Hardy deciduous shrubs for ornamental planting, flowering white in July. Common culture.

SYMPHYTUM. [Boraginacæ.] Hardy herbaceous perennials, flowering various colours in May, June, and July. Common outdoor culture.

THOMASIA. [Sterculiacæ.] Greenhouse shrubs, flowering purple, red, or white, in May and June. Ordinary greenhouse culture. Cuttings.

THYRSACANTHUS. [Acanthacæ.] Fine stove shrubs, flowering scarlet, lilac, or white, in July; others in February and August. Ordinary culture.

TILLANDSIA. [Bromeliacæ.] Stove epiphytes, flowering various colours in nearly all the months. Increase by suckers and seeds. Common stove culture.

TOLPIS. [Asteracæ.] Hardy annuals. Common border culture. Flowering yellow in June.

TRYMALIUM. [Rhamnacæ.] Greenhouse evergreen shrub. Very beautiful when exhibiting its profusion of white fragrant flowers in February. Ordinary greenhouse culture in loam and peat.

TUPA. [Lobeliacæ.] Half-hardy perennials. To be treated as Lobelias. Flowering red, purple, yellow, and scarlet, in August, September, and October.

VANDA. [Orchidacæ.] A superb genus of orchids, which may be treated as Stanhopea. It comprises many species of great beauty, and cannot be absent from any choice collection.

VANILLA. [Orchidacæ.] This should be grown on a log of wood, that the roots may cling to it. This plant yields the fruit the aroma of which is so remarkable that it is used in liqueurs, ices, scented snuff, chocolate, and confectionery.

VERATRUM. [Melanthacæ.] Hardy herbaceous perennials. Out of door culture. Flowering white, purple, and green, in June and July.

VERNONIA. [Asteracæ.] Hardy and stove shrubs and perennials, all flowering purple. Two or three are annuals. Light rich soil suits them all; and the ordinary culture of their class.

VERTICORDIA. [Chamelanciaceæ.] Greenhouse ever green shrubs, belonging to race of fringe myrtles. (For culture see MYRTLES.)

VIRGILIA. [Fabaceæ.] Greenhouse evergreen shrubs. Loam, peat, and sand. *V. lutea*, as an exception, is a fine hardy tree for ornamental plantation. Common greenhouse culture is all that the others require. Increase by layers. All flower in June, yellow or purple.

VITIS. [Vitaceæ.] The Grape Vine, which has become of the greatest importance in every garden establishment. It requires rich strong soil, indoors or out, and its training consists chiefly in removing useless shoots as they appear and fastening the strong ones, stopping the growth of the bearing shoots at the second joint beyond the bunch, and thinning the grapes to give them room to swell.

WAHLENBERGIA. [Campanulaceæ.] Hardy and greenhouse annuals, biennials, and perennials, wanting only the ordinary culture, according to their class. For the most part they flower blue, in May, June, and July, and all may be increased by division or seeds.

WULFENIA. [Scrophulariaceæ.] Half-hardy herbaceous biennial, flowering lilac or blue in July. Soil light and rich. Does well out of doors all the spring and summer.

WURMBEA. [Melanthaceæ.] Bulbs from the Cape. The ordinary greenhouse culture. Flowering white in May and June.

XEROPHYLLUM. [Melanthaceæ.] Hardy herbaceous perennials, flowering white in May. Common outdoor culture.

ZIERIA. [Rutaceæ.] Greenhouse evergreen shrubs. Sandy loam and peat. Cuttings strike readily. All flower white in June. Ordinary greenhouse culture.

ZIGADENUS. [Melanthaceæ.] Hardy herbaceous perennials, flowering white or cream colour in May or June. Common outdoor culture. Increase by dividing the roots.

ZIZIPHORA. [Lamiaceæ.] Hardy annuals and frame evergreen shrubs. Adapted for rockwork. The annuals to be sown in the open ground in April; the others grown in pots of sandy soil. They all bloom pink and red, or purple, in July.

ZIZYPHUS. [Rhamnaceæ.] A genus comprising stove, greenhouse, and hardy evergreen shrubs and trees. The stove and greenhouse want loam, peat, and sand ; the hardy kinds common outdoor culture. Increase by cuttings. They flower variously, yellow, white, or purple, in the spring months, to July and August.

ZYGOPETALUM. [Orchidaceæ.] A genus of fine orchids. To be treated like Stanhopea. The blooms are a mixture of colours with green.

ZYGOPHYLLUM. [Zygophyllaceæ.] A genus of hardy and greenhouse shrubs and perennials, some blooming white scarlet, yellow, and orange, in June, July, August, and October ; each kind requiring the ordinary treatment of its class.

Creepers on Mechanics

Amphidopsis

Teichii

Wm. H. Chase - Formulas
Picasso

